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The Journal of the Fire Protection Profession

FEBRUARY 6, 1929

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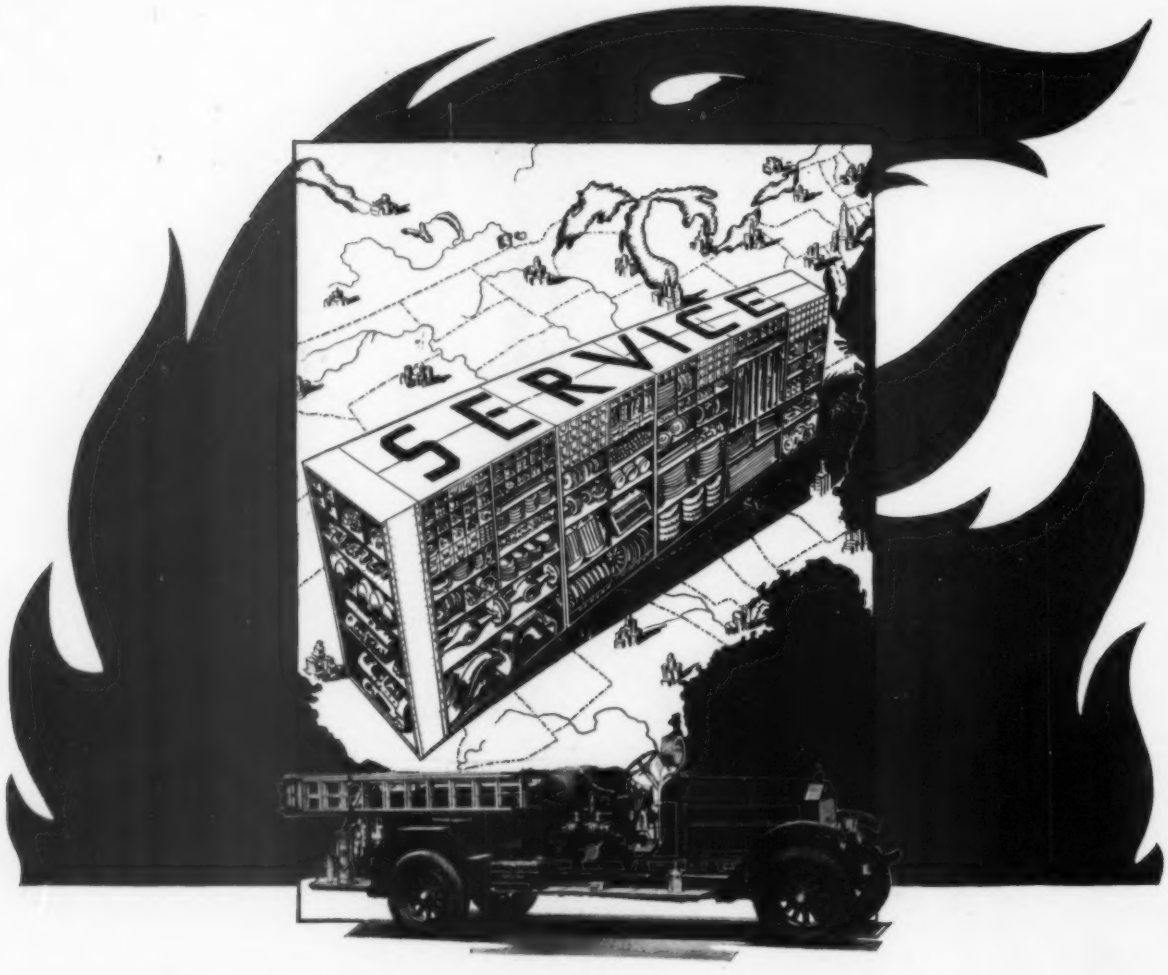

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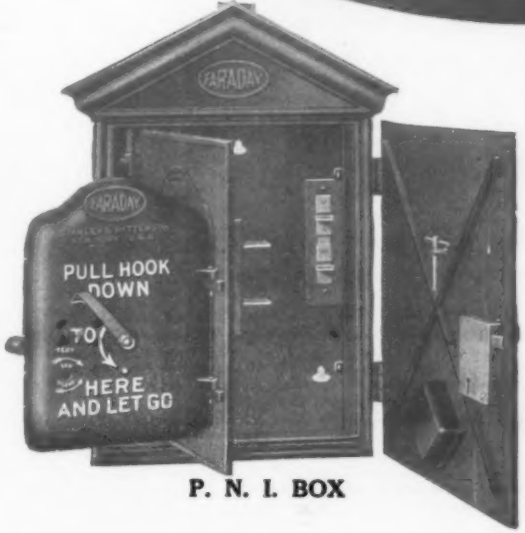

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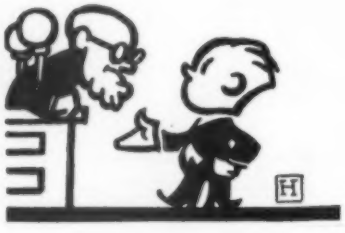

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¶ Just tell us what you want,—our Editors will do their level best to give it to you.

The Publishers

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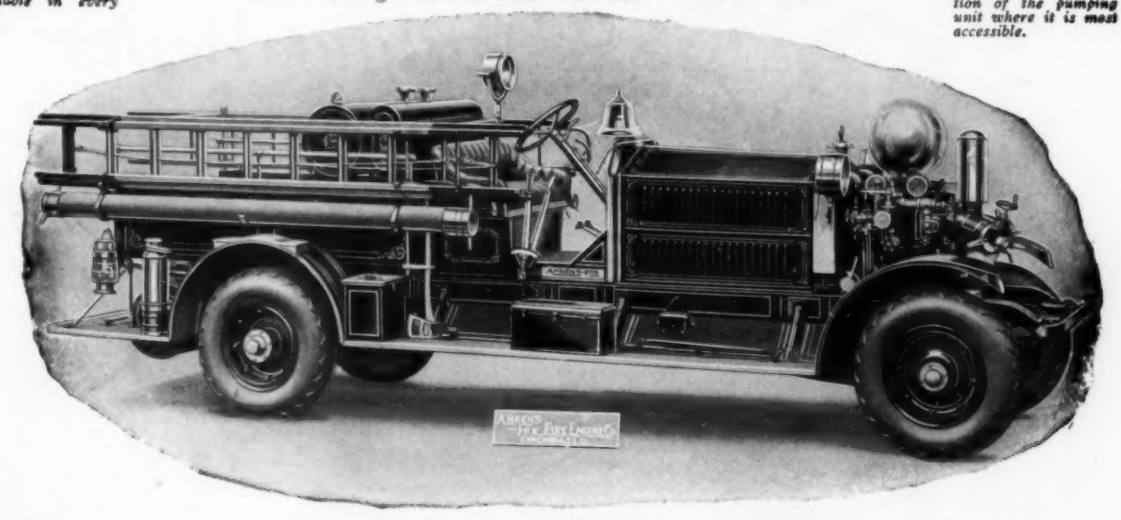

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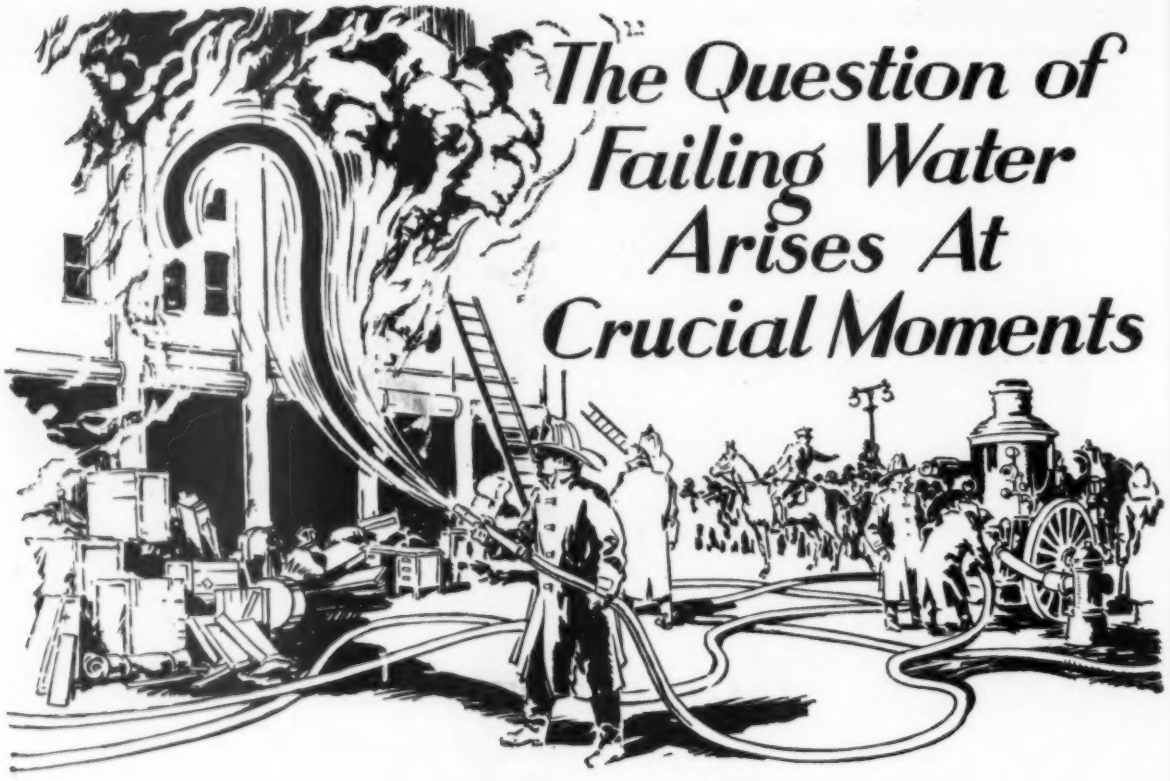

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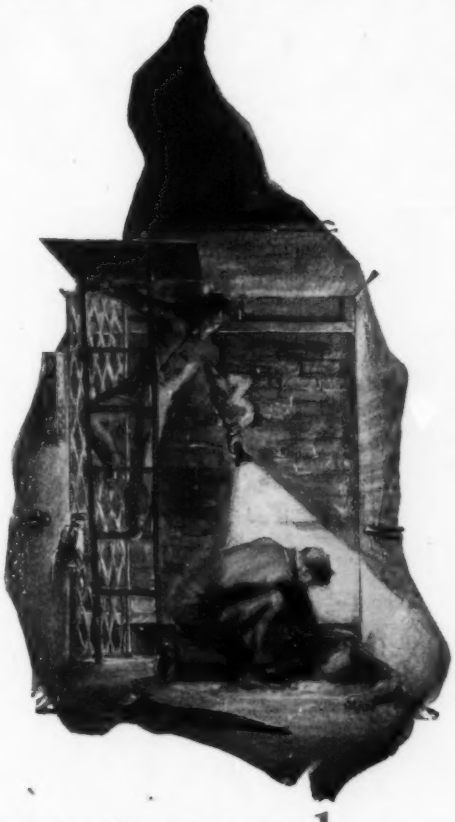

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(A Consolidation of Fire and Water Engineering and The Fire Engineer)

The Journal of the Fire Protection Profession

VOLUME LXXXII FEBRUARY 6, 1929 NUMBER 3

Fire Prevention Through Inspection

How the Fire Loss Record of Detroit Has Been Reduced Through Work of Its Fire Prevention Bureau—The Arson Squad

THAT inspection, when properly conducted on scientific principles, can bring about real fire prevention, is amply proved by the following article, prepared by G. S. Goldwater, Fire Marshal of the Detroit Fire Department, and incorporated in the annual report of the Fire Prevention Bureau of that city:

Just as the Extinguishing Division of the Detroit Fire Department uses training schools to test out men and apparatus, so does the Fire Prevention Bureau use various means and systems to promote fire protection and fire prevention in buildings, in order that fire losses may be kept at the minimum and the greatest degree of security be given to human life.

More important than other facts and figures in the work of the Detroit Fire Department during the year 1928, is the knowledge that notwithstanding the fact that there was an increase of 677 fires over the year 1927, a decrease of monetary loss by fire is shown for the year 1928 over the previous year of approximately $2,103,405. Of added importance is the fact that during the year 1928, the Building Department issued 28,550 permits for new buildings of all kinds, having a value of $129,260,285, all of which has been added responsibility for the Fire Department.

Work of the Fire Prevention Bureau

It is the opinion of all concerned that the Fire Prevention Bureau has accomplished more during 1928 than any previous year. More inspections have been made; more orders complied with; a greater amount of work from every standpoint has been done. This Division's activities have been more comprehensive than during, its existence, from the fact that more careful and detail inspections have been made. Each and every detailed inspector has been specially trained under the supervision of experts. The men know what they are doing and are in a position to advise if a correction from a fire hazard standpoint is necessary.

During the past year a self-evident need has been obliterated through the acquisition of two additional men to the Arson Squad. This addition has somewhat revolutionized the work of this Bureau, insofar that all fires requiring investigation are now immediately investigated by the Arson Squad instead of as heretofore when this work was divided between them and inspectors of the Fire Prevention Bureau.

Hazard of Spray Painting

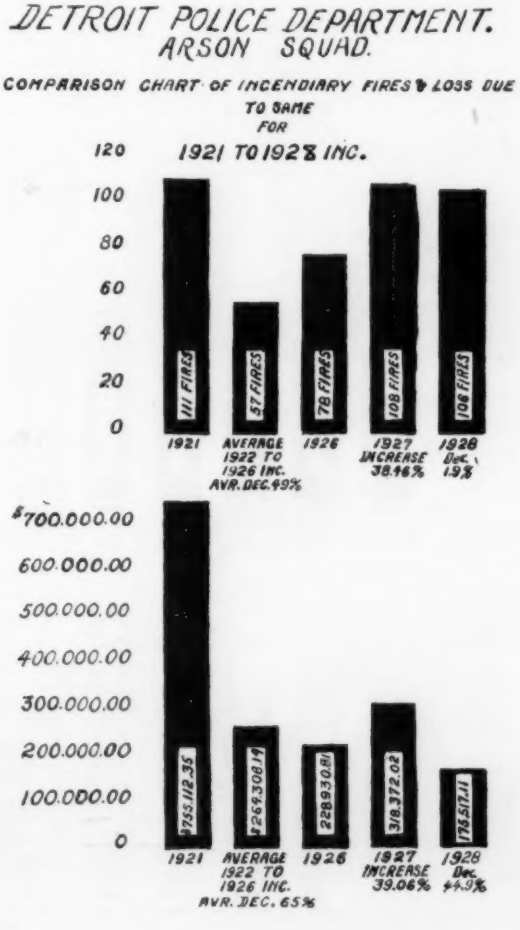
Fire Prevention officials are much concerned with the rapid growth of a new and sharply defined fire hazard in the form of so-called spray painting, especially as relating to pyroxylin finishes and thinners. The great danger of the sudden and large introduction of this method of finishing automotive equipment, furniture, novelties, etc., lies not so much in the growth of this industry, but to its prosecution under conditions that are ripe for development of fires of a serious nature.

In large automobile factories using this form of painting, properly vented spray booths are usually provided. The protection in these large industries has gradually been strengthened by the experience in handling spray painting and the owners of such larger plants are, for the most part, only too willing to work with fire prevention officials to secure as nearly one hundred per cent protection from fire hazards as possible.

The real danger that faces the fire department and the communities in general is the mushroom growth of spray painting systems in garages and repair shops and in small painting establishments, especially those working along refinishing lines for automotive equipment. Much effort is put forth by fire inspectors in enforcing the State Law, insofar as it applies to spray painting, as well as educating those handling this product of the great possibilities of fire in the careless handling and use of pyroxylin finishing materials.

Leading Causes of Fire

Several interesting revelations are contained in the tabulation for 1928. Not the least significant of these is, of course, the tenacity with which the leading causes continue to hold their



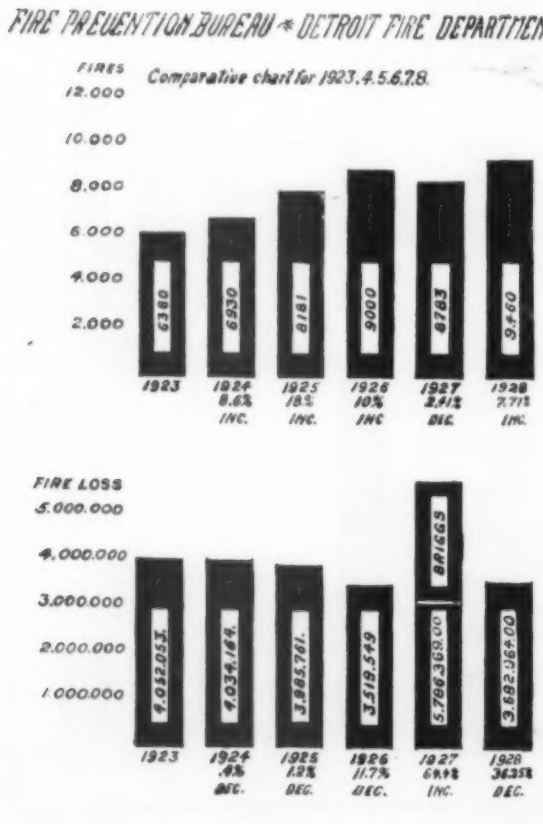
positions year after year, with fires in wood shingle roofs being the most prominent. What has been said from time to time concerning the wood shingle roof and other combustible surfacings seems indeed to be borne out by this latest record, and the epithet applied to them of "A Crowning Menace" is almost literally true. The history of sweep fires in many cities of this country, has been written around the single condition "Wooden Shingle Roofs."

Proposed Building Code Provides for Fireproof Zone

Looming large for future Detroit will be the adoption of the new Building Code, now in course of revision, which will provide an absolute fireproof building zone, fire limits greatly extended and a better understanding as to a more intelligent upbuilding of a greater city.

Some Inspection Statistics of Detroit

Buildings inspected	45,240
Buildings re-inspected	12,028
Theatre inspections (night work)	5,776
Complaints from citizens investigated	1,386
Film exchanges inspected	322
Details to churches, bazaars, schools, etc. (night work)	347
Total inspections and details	65,099
Hazardous conditions remedied	35,925
Defects referred to Department of Buildings for further investigation	1,148
Licenses and permits ordered secured from the Department of Buildings:	
Garages	62
Steam pressing boilers	136
Boiler operators	138
Storage, sale and handling of inflammable liquids	126
Acetylene, torches, welders and cutters	107
Paint and Oil Dealers Permits	35
Total licenses and permits ordered secured	604
Plans examined relative to installation of standpipes	248
Fires of 1928 requiring additional alarms:	
Second alarms	20
Third alarms	12
Total	32
Number of fires investigated by Inspectors	881
Number of fires investigated by Arson Squad	616
Total number of fires investigated	1,497



Detroit Arson Squad Report of Fires Investigated and Dispositions of Arrests for 1928

Month	Number of fires investigated	Origin		Number of arrests	Dispositions					
		Accidental	Incendiary		Convicted	Acquitted by jury	Discharged on examination	Nolle prossed	Warrant refused	Died awaiting prosecution
January	56	47	9	1 *1	...	...	...	...	1	...
February	49	40	9	...	...	...	1	...	...	...
March	56	49	7	1	1	...	...	...	1	...
April	50	39	11	3	...	...	...	1	3	...
May	49	37	12	6	...	...	...	...	4	1
June	23	13	10	5	...	...	...	...	4	...
July	33	23	10	9	...	...	...	...	8	...
August	23	18	5	3	...	1	...	...	3	...
September	19	14	5	3	3	1	...	...	1	...
October	30	16	14	7	5 †1	...	...	...	1	...
November	90	82	8	6	...	...	...	...	5	...
December	138	131	7	...	...	...	...	...	...	...
Total	616	509	107	45	10	2	1	1	31	1

* Juvenile.
† Fourth offense — life imprisonment.

Records maintained in the Detroit Fire Prevention Bureau show that during the year 1928 there were recorded:

Number of fires where no loss was recorded	5,082
Number of fires with loss less than $100	1,796
Number of fires with loss between $100 and $1,000	1,545
Number of fires with loss between $1,000 and $10,000	548
Number of fires with loss between $10,000 and $20,000	28
Number of fires with loss between $20,000 and $30,000	15
Number of fires with loss over $30,000	10
Number of fires with losses not settled	436
Number of needless alarms (smoke, steam, etc.)	970
Number of false alarms	1,228
Number of fires out of city	20
Number of specials (to render first aid)	573
Total of fires and alarms	12,251

Watching Out for the Incendiary

The following is a report of the duties performed by the Detroit Arson Squad during the year 1928:

A total of 616 fires were investigated, which were reported by the Fire Department as having originated from various causes. After an investigation of these fires it was found that 509 of them were from accidental causes, the remaining 107 were of incendiary origin.

These incendiary fires are classified according to the occupancy as follows:

Dwellings (occupied)	33	Store Buildings (vacant)	2
Dwellings (vacant)	12	Shoe stores (retail)	2
Garages (minor)	11	Hotels	1
Rooming Houses	5	Auto parts factory	1
Barns	5	Warehouse	1
Tailor Shops	4	Pool Room	1
Dry Goods Stores (retail)	4	Meat Market	1
Grocery stores (retail)	4	Variety Store	1
Apartment Houses	4	Dance Hall	1
Restaurants	3	Drug Store	1
Automobiles	3	Lodge Hall	1
Junk Shops	2	Laundry	1
Houses of Prostitution	2	Millinery Store	1

The motives for these incendiary fires and the loss caused by them are as follows:

	No. of Fires	Loss
To defraud insurer	29	$87,266.22
For revenge	46	61,559.95
By pyromaniacs	17	9,878.38
To conceal other crime	15	16,812.56
Totals	107	$175,517.11

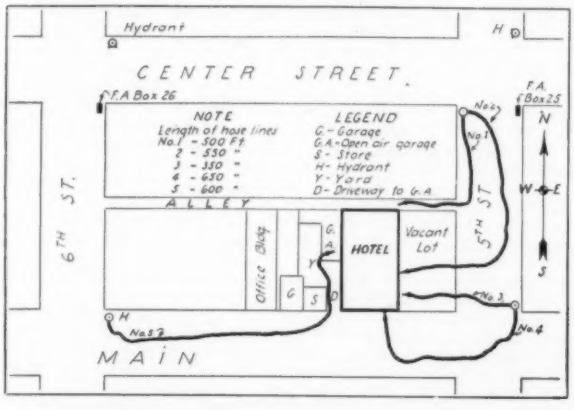
Among the outstanding cases of the year were those of Morris Coleman and Louis Berman. Coleman had been three times previously convicted for arson and after his fourth conviction was then tried as a fourth felony offender and sentenced to life imprisonment. Berman, who was on parole from Sing Sing Prison, N. Y., where he had served five years of a 7½ to 20 year sentence for arson in the city of New York in 1916, after conviction here he was sentenced to 7½ to 10 years.

Did These Volunteers Do Good Work?

Large Frame Hotel Well Ablaze When Alarm was Turned In — Limited Apparatus and Personnel

THE following letter, together with the pictures and diagram shown herewith, were received from an officer of a small western fire department. They illustrate very well a type of fire commonly encountered in small cities and also show quite conclusively what a volunteer department is capable of doing when faced with a serious fire problem.

To the Editor: "Below is outlined a big fire which we had



here. I would like to have your opinion on how this might best have been fought.

"The fire department consists of an automobile hose and chemical truck with 1,650 feet of 2½ inch hose, 250 feet of 1½ inch hose and 350 feet of chemical hose; another automobile hose and chemical truck with 1,150 feet of 2½ inch hose, and 200 feet of chemical hose on it. The department has a fire chief, fire marshal, one full-time driver and ten volunteer firemen. The mayor of the city is acting as assistant chief.

"The building involved in this fire was a hotel of two and one-half stories in height with galvanized iron roof and galvanized front as well as a portion of side walls. The building was of wood construction throughout and had 36 rooms, 16 of which were on the second floor and 14 on the main floor; also 6 in the building at the rear, 3 downstairs and 3 upstairs. There was no basement in the building.

"The fire started on the ground floor, it is believed, in the rear of the building. Sweeping upward the blaze traveled through the two story building with great rapidity and before the arrival of the department the entire rear portion of the structure was ablaze.

"The department received the alarm shortly before mid-night.

How the Fire Was Fought

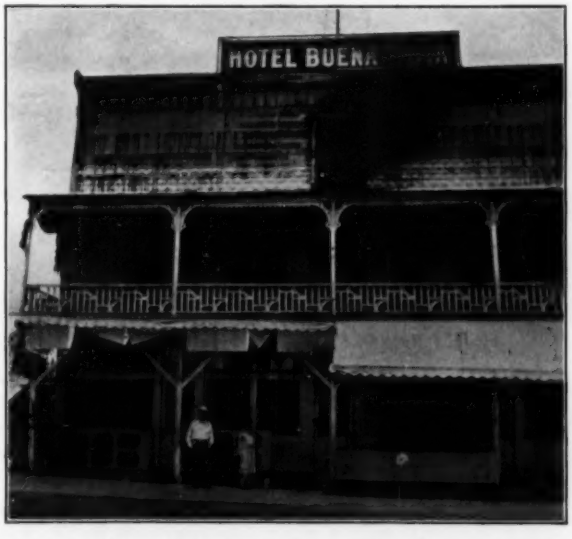
"Upon receipt of the alarm one of the trucks left its station, followed shortly by the second truck which responded when another box in the neighborhood of the fire was pulled. The first truck on hand which we will call Company No. 1, got to the fire and stretched in a line from the corner of 5th and Center Streets to the alley in back of the hotel. By the time this was accomplished the second truck, which we will call Company No. 2, had a line laid down 5th and Center Streets to the side of the hotel on 5th Street, and then laid a second line from 5th and Main Streets to the front of the hotel. At this time Company No. 1 which was in the alley back of the hotel, came out of the alley and went to 6th and Main Streets and laid a line to the front of the hotel and to the side. The diagram shows the layout of lines at the time the fire was at its height.

"The water supply was excellent, as 150 pounds had been maintained at all times on the fire mains.

"Five minutes after the alarm came in the pressure was boosted to 250 pounds in the mains, which pressure was maintained during the entire fire.

"After looking over the sketch herewith together with the photographs, I would appreciate very much if you would review this fire in an early issue of FIRE ENGINEERING, making suggestions on the methods which might have been followed in handling it."

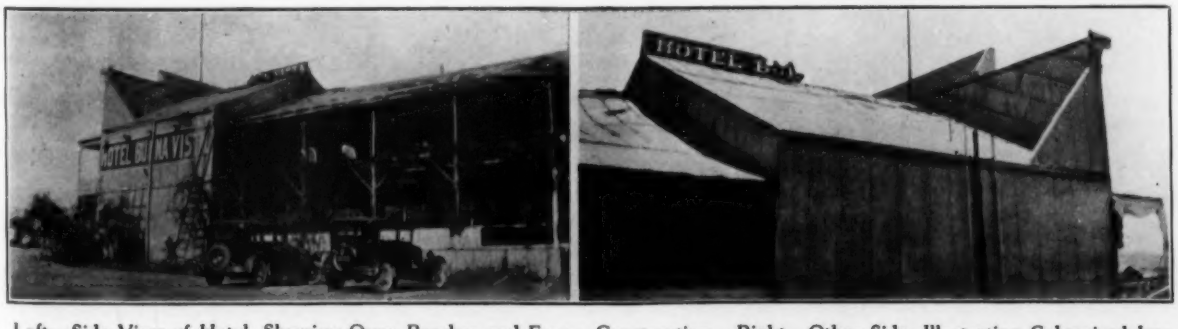
Signed .....



Front of Hotel, After Fire, Showing Flimsy Frame Construction and Limited Damage Done

Comments on Handling of Fire

This volunteer department did excellent work in holding the fire, and making such a prompt "stop." Usually when buildings



Left—Side View of Hotel, Showing Open Porches and Frame Construction. Right—Other Side, Illustrating Galvanized Iron Sheathing and False Front

of this type become fully involved, the fire is not stopped until the building has been leveled. In addition, the department had quite a serious handicap in the way of metal sheathing, which was placed over the entire front of the building, the roof, and part of the sides. The fire burned beneath this metal and at the same time was not exposed to the streams operated by the department.

While there were no serious exterior exposures, the interior ones were extremely bad as will be noted by the illustrations herewith particularly the one showing the side view of the hotel with the open porches and rooms and doorways entering this porch throughout the entire length of the structure.

The department in its operation struck the worst exposure first, the rear one, and having brought the fire under control at this point moved up along the open side and made quick work of the blaze. Two lines were operated on the open side of the building and one on the front while a single line was operated at the rear and one on the opposite side from the open side.

The placement of lines is considered excellent, and it will be noted that the department, although limited with the amount of hose available, and handicapped by long stretches necessary, was able to get these five lines in operation and do first class work with them.

The three fundamental rules of fire fighting were carried out here with effect: first, covering exposures; second, confine the fire, and third, extinguish it. The illustrations herewith showing the front of the hotel after the fire indicate how well the department accomplished its purpose in holding the fire with minimum damage.

Jacksonville Boat Once a Sub-Chaser

The city of Jacksonville, Florida, has an efficient fireboat named "John B. Callahan," 110 feet in overall length. It was originally a navy sub-chaser known as "S. C. 145." When the boat was taken over from the government, interior partitions

The "John B. Callahan" At Jacksonville

were removed to make a large and spacious room for the engines and pumps and a raised deck was added with pilot house at the forward end. A turret pipe is mounted on top of the wheelhouse and another one is situated on the after deck.

The boat has a rated capacity of 6,500 gallons of water per minute and at a test pumped 7500 gallons per minute. There are four Sterling gasoline engines of 300 horsepower each to furnish power for the pumps and there are two Standard engines of 220 horsepower each for propulsion.

The equipment includes 1,000 feet of 3 inch and 1,000 feet of 2½ inch hose. Jacksonville has an extensive waterfront on the St. Johns River along which are miles of wharves and manufacturing plants as well as shipyards and lumber yards. The accompanying picture shows the fireboat at her dock. There is a station for the men of the crew at the head of the pier.

HARRY BELKNAP.

Dewitt, Ia., Purchases Apparatus—A Prospect fire apparatus has been purchased by Dewitt, Ia.

Iowa City, Ia., Firemen Ask for Increase—Members of the Iowa City, Ia., department have asked for a twenty per cent increase in pay.

Ex-Chief Moore Loses in Recount—Paul J. Moore, Democratic candidate for congressman from the Eighth Congressional District of New Jersey, was defeated for election when the recount was taken. In the original count, Mr. Moore was elected by a majority of 549 but when the second count was made, he lost by 299 votes. Mr. Moore was formerly fire chief in Newark, N. J.

CORRESPONDENCE

Method of Raising Line to 30th Floor

To the Editor:

The following is my suggestion for bringing up a hose line to the thirtieth floor of a building where the elevators are not operating. The following assignments are made:

Six men to the 29th floor carrying one hundred feet of 2½-inch hose, one hundred feet of hose rope, one siamese connection, one hose roller and two shut-off nozzles together with a hose strap.

Six men to the 14th floor with one hundred feet of 3-inch hose, one hose roller, one hook, one hundred feet of rope and one hose strap.

Six men to 7th floor with one hundred feet of 3-inch hose, one hose roller, plaster hook, one hundred feet of hose rope, one hose strap. Also three men to the 22nd floor with one hundred feet of hose rope, one hose strap and one hose roller. One to 25th floor and one to 11th floor with hose straps to take strain off line.

Men on the 29th floor drop their hose rope to the men on the 22nd floor. They lower their hose rope to men on 14th floor who in turn drop their rope to men on the 7th floor and from there to the sidewalk. When men assigned to the seventh floor reach that floor they couple the two lengths of 3-inch hose which they have carried up stairs. When men assigned to the 14th floor reach their station, they connect their two lengths of hose together. In the meantime men on the street have coupled four lengths of 3-inch hose into one single line.

This line is tied to the rope dropped from the 7th floor station. After the line reaches that floor, the rope is untied and the hose tied to the line lowered from 14th floor and so on to the 29th floor. Men on that floor raise the line and after rolling the line in through the window, it is fastened with the hose strap. By using the siamese connections, two 2½-inch lines can be made available to reach the fire on the 30th floor.

To supply water to the line of 3-inch hose, two lines of 2½-inch hose should be laid from the pumper to the siamese connection.

Six companies should be able to carry out the operations which I have mentioned using twenty-four men on the inside of building and twelve men on outside. I am counting on six men to each company.

Yours truly,

ELWOOD P. WILCOX,
Truck Co. No. 4, Scranton, Pa.

Another Method

To the Editor:

In the November 14th, 1928, issue of FIRE ENGINEERING, under Questions and Answers, referring to the question of stretching a line to the thirtieth floor of a building, you state "The concensus of opinion of practical fire fighters is that hose is best brought to the high floors in a building by means of roof ropes, and hose rollers, the hose being hoisted up the face of the building."

I take issue with you on that statement in a friendly spirit, and with the hope that a final solution of that important question will eventually result. I firmly believe that hoisting lines up the faces of high buildings under fire conditions is generally impractical.

The method is complex and the different units inaccessible to the commands and orders of the officer in charge.

Entrance to the various floors must frequently be forced and correct windows are often difficult to select. Ornamental projections may obscure a view of the units above and below, and make hoisting difficult. It would be almost impossible to replace a bursted length of hose.

Falling glass or other material may make work at the street level or set back exceedingly dangerous.

Hose rollers and ropes of considerable weight must be carried.

You state that carrying hose up thirty floors of a building is an impractical operation. In order to be certain of my statements my driver, and myself unaided, accompanied by a timekeeper, placed a length of two and one-half inch rubber lined, cotton jacketed, standard fire department hose and a one and one-eighth inch nozzle, on the thirtieth floor of the Pure Oil Building in six minutes and fifty seconds from the time we left the street, using the stairway. We were in sufficiently good condition to give battle to a fire by the time we could make couplings and reasonably expect water at that height. My driver is thirty-eight years of age with eighteen years of fire service, and I am

(*Continued on page* 111)

What Should Modern Rules Include?

Great Variety of Rules Applying to the Rank of Captain—Eighth of a Series of Articles on This Subject

AS compared with the rules applying to chief, assistant chief and battalion chief described in the first three articles of this series, the regulations pertaining to captain are indeed numerous. Two hundred and thirty-six different rules are found for this rank in the 41 reports analyzed. The following is a continuation of this analysis from last issue:

The rules which follow have been found listed in but one city each:

Scranton, Pa.

"When a captain is designated to act under any other capacity he will at the proper time turn over the command of this company to the lieutenant or other fireman, who he may designate to the command of the company."

"Members of the off shifts shall be required to report for duty at their respective companies for all third, and fourth alarms. Promptly report their arrival to the officer in command at the fire."

Syracuse, N. Y.

"They shall not grant any leaves of absence to members of their company unless it is ordered by the chief."

"Captains shall shift every fifth day so that the captain and lieutenant shall command each platoon alternately."

Toledo, Ohio

"He shall make out a detailed report of all fire service performed by his company each month on blanks provided for that purpose and cause same to be sent to the first assistant chief on the first of the following month."

Washington, D. C.

"When hose is borrowed at a fire, the commanding officer of the company borrowing it shall see that it is properly rolled up and immediately returned when it is no longer needed. The commanding officer of the company from which the hose is borrowed shall see that it is returned."

"A company commanding officer shall see that his drivers properly blanket their horses upon arrival at a fire. In cold weather the horses may be housed at the nearest convenient point by permission of the company commanding officer, provided it can be done without cost to the District of Columbia. A company commanding officer shall see that motor apparatus is so cared for as to prevent freezing in cold weather."

"When at a fire, a company commanding officer receives an order from a superior to take a position, his company shall not be interfered with by any other company in attempting to take the same position."

"A captain shall keep a record of the serial numbers worn on the cap badges af members of his company."

"Upon receipt of any official order requiring the presence of any officer or member on a trial board or other department business, a company commanding officer shall immediately communicate the same to the officer or member concerned."

"No company commanding officer of an on-coming platoon shall allow his platoon to go on duty, and no company commanding officer of an off-going platoon shall allow his platoon to go off duty unless and until the on-coming platoon possesses at least its minimum quota of properly qualified men."

"Company commanding officers shall detail one man to take entire charge of the operation of the domestic heating plant. The man so detailed shall be thoroughly instructed in the operations of the heating system, and shall so perform his duties in the operation and care of the plant during the time he is on duty, as to produce the best results from the same. He shall immediately report to the company commanding officer any defects or need of repairs with satisfactory explanation of the cause."

"At least two men on each shift shall be instructed and made competent to take charge of the domestic heating plant, and in the course of such instruction commanding officer may, if they deem it necessary, request directions from the supt. of repairs."

"Upon the fifteenth day of each month the captain of each company shall, in person, or by a personal representative, call at the office of the chief engineer, and ascertain from the clerk in charge of supplies what articles have been ordered for his company. He shall make a written memorandum thereof and transcribe the same upon the stub of his requisition, and shall make personal written acknowledgement upon the records of the chief engineer of the receipt of this information. No officer or member shall receive or permit to be received any article not ordered for his company."

"A company commanding officer shall prevent the accumulation of ashes or cinders in or under the heater, stove or furnace in the house. He shall see that all ashes are removed from quarters in accordance with instructions issued by the chief engineer."

"A company commanding officer shall cause hose to be changed every twelve days, whether it has been used or not. He shall also see that extra hose is hung in the tower and changed on the hooks every sixth day."

"A company commanding officer shall report to fire alarm headquarters when leaving quarters with his company for any cause other than orders received from said headquarters. If responding to a local alarm otherwise than by order from fire alarm headquarters, he shall notify said headquarters of the location of said alarm as nearly as he can."

"In case a company leaves quarters to respond to a local alarm of fire, and is prevented, upon its departure, from communicating with fire alarm headquarters, the company commanding officer shall, as soon thereafter as possible, report the fact to said headquarters by the nearest telephone."

"A commanding officer of a truck company shall detail certain members of his company for duty with axes, ceiling hooks, life lines and such other appliances as may be necessary for the protection of life and property. He shall, when necessary, direct the operation of the ladder pipe."

"Company commanding officers shall keep a daily record of fuel consumption by the domestic heating plant."

"A commanding officer of a truck company shall see that ladder locks are oiled at the time of each apparatus drill, and shall examine cable, and all other appliances, and be held strictly responsible for the working order of the same."

"A company commanding officer shall see that the engine is lighted off on all alarms of fire to which his company responds, unless he deems it advisable to order otherwise in specific cases.

"When notified by his battalion chief engineer that a test of hose is to take place at a given time, a company commanding officer shall see that such hose is properly in position to proceed with the test at the time specified."

"A company commanding officer shall be responsible for a fuel wagon in his charge."

"A company commanding officer shall examine and have weighed in his presence all forage which may be delivered at his quarters. He shall be furnished with a copy of the specifications for forage, and shall refuse to receive any that does not fully comply therewith. He shall promptly report to the chief engineer any forage so refused and his reasons for such refusal. He shall carefully examine all supplies received by his company and reject such as may be delivered in an unfit condition. Such rejection shall be promptly reported to the chief engineer."

Waterbury, Conn.

"Whenever headquarters details a company to respond to a still alarm, the order must be obeyed, regardless of any bell alarm which may be received in the meantime. Headquarters details on still alarms, and such directions are to be followed without debate."

"The company commander shall not allow smoking near automobiles undergoing repairs, or near any open vessel of inflammable liquid.

"Intoxicating liquors shall not be allowed in any building under the control of the department.

"Where more than one Captain is quartered in one station the Department Chief shall designate a station Captain, whose duties it shall be to see that all rules and regulations of the Department are inforced. The Station Captain, however, shall not be in direct control of any company, other than the one he commands, except in the absence of the Captain and Lieutenant of such other company." (Station Captains).

"If in command of a station where more than one Company is quartered he shall see that a constant patrol of the desk is in

force, but the detail of each Company shall be made out by each respective Captain." (Station Captains).

"Each member detailed for desk duty shall be under the supervision of the Station Captain while at this work. A correct daily record shall be kept and approved by the Station Captain at the close of each day. All telephone and bell alarms and other information shall be recorded on the day sheet. In the absence of the Station Captain the senior officer shall be in charge of the station. The Company Captain shall sign all daily reports, after which they must be signed by the Station Captain." (Station Captains).

"Department telephones must not be used for other than Department business except with the permission of the Station Captain, or where there is no Station Captain the Company Captain. Frivolous or lengthy conversation, resulting in the tying up of the lines must not be tolerated, under any circumstances." (Station Captains).

"He shall not allow games of any kind to be played until the morning work shall have been completed. The playing of pianos shall not be permitted until the afternoon of each day, except Sunday. The playing of the piano at Fire Headquarters shall not be permitted until after 3:30 p. m. each day, except on Sunday. During the summer months the playing of the piano at Fire Headquarters shall not be permitted during the meetings of the Board of Public Safety or Board of Public Works. The object of this rule is to prevent annoyance to the attachees of the other parts of the municipal building during the morning and early hours of the afternoon." (Station Captains).

"Hose carried in hose bodies shall be changed at least once a month or whenever damp. Captains shall report monthly on their monthly sheets the amount of hose on their apparatus and the amount held in reserve.

"Batteries shall be tested and inspected by drivers once a day.

"Captains shall require each member of his command to report on the apparatus floor immediately upon the sounding of the alarm, and if their company is assigned to respond they shall direct the driver in responding to the call.

"The Captains shall have authority to order all of the men of his command to assist in the repair of apparatus, without consent and approval of the department chief.

"If in command of a combination hose and chemical company and having arrived first he shall use his best judgment as to whether a chemical or water line should be use. He should be exceedingly careful not to lose any time however in making a hydrant connection, in case such action is warranted.

"Telephone tests shall take place daily at 7 a. m. and 5 p. m. and at any other time that the captain has reasons to believe a test is necessary. Captains must see that this custom is followed.

"The still alarm signal shall be sounded by the station captain or the officer in charge within five minutes after the six o'clock test.

"Ladder truck commanders shall report promptly to the officer in charge of the fire for orders as to the work of his company. Members shall assemble at the truck side and await instruction from their commanders unless orders to the contrary are issued."

Yonkers, N. Y.

"Shall make inspections in their districts and report all places and persons selling fireworks or having vegetable or other combustible or explosive material without a permit or license."

Mysterious Explosion Wrecks Home

Persons living in the vicinity of a certain house in Peoria, Ill., noticed a strong gas odor but at that moment, did not give it any serious thought. The odor was even stronger on the following day but the point from which the gas was issuing could not be detected.

Two days after this trouble, a neighbor noticed that milk and newspapers were collecting untouched on the porch of one home. The police department was notified. Policemen forced an entrance into the house and found a married couple in bed, dead. From evidence, it appeared that the woman tried to reach a window but fell back across the bed. An inspection showed that all gas jets were closed and just how gas could enter the home appeared to be a mystery.

Relatives of the dead persons locked the home and everything was left in its place.

At nine o'clock that evening, the same relatives came back. The door was unlocked and one of the party switched on the lights from a push button in the hall. Just as the button was pressed, a violent explosion resulted. Those on the porch were blown onto the driveway. The house was badly damaged but the only fire that resulted was in the basement down by the water service. The flames appeared to be coming from around the water pipe and upon investigation it was found that gas was working its way into the home around the water pipe leading from the street.

One theory is that the water service which was laid from the curbing, had settled from improper tamping of earth. When a break occurred in the gas main, it followed the path of least resistance and when it reached this particular point, it then followed the voids into the house.

When the house was closed after the two persons were found dead, this gas collected and filled the house. In the evening, when the lights were switched on, a spark from the switch caused the explosion.

The gas company has done all possible to locate the break in the gas main. A dangerous situation resulted as other houses in the vicinity have been detecting strong gas odors in the rooms. The ground is frozen and investigations are difficult.

The incident is a most unusual one and indicates the importance of properly backfilling a trench after water, sewer or gas services have been placed.

SIDNEY L. ULRICH.

Mt. Clemens Chief Dead from Gas Fumes

Chief Edward Sawitzky, fifty years old, of Mt. Clemens, Mich., died at the local hospital from what is believed to be the effects of gas poisoning.

As he was forcing his way into a fire on East Broadway, he was overcome by gas and smoke. He had been in the place only a short while when he was forced to leave on account of severe pains in his lungs. He was rushed to the hospital and suffered from the effects of the gas for three days, before he died.

Chief Sawitzky was born in Mt. Clemens, May 8, 1878, and has lived in that city all his life. After finishing his grammar school education, he worked for a greenhouse company for twelve years and then joined the fire department. On August 16, 1917, he was made chief of the department.

Besides his widow he is survived by a son, a daughter and two brothers.

Pitch Horseshoes—There's a Kick in It

Along with the craze for so-called modernism, firemen in Atlanta, Ga., are giving up dominoes and the more exciting table games, for the real American sport of ringing horseshoes. Each station has its stakes where firemen in their spare moments practice for a coming fire department tournament.

The winner will be crowned. Reports say that he will be crowned, and he undoubtedly will.

The contest is enthusiastically endorsed by Chief William B. Cody and he will start the competition. Approximately twenty station representatives will compete. Chief Cody said:

"In the old days, there were always horseshoes around fire stations and there was horseshoe pitching. In the Atlanta fire department we had some real experts. But since the motorization of the department, the game has languished and I'm delighted to see a movement inaugurated for its revival. It keeps the minds of the men occupied and develops company spirit."

It is believed that the urge for this sport will spread to the average citizen, once they see the firemen at this game.

Who Has Old Clapp and Jones Engine?

One of our readers is anxious to secure the safety valve from an old Clapp & Jones engine, and as a final appeal has come to the Editor for information. We shall be very glad to hear from any one of our readers who has a discarded Clapp & Jones engine in his department repair shop, or who knows where such may be located.

Fire Loss Lowered in Ft. Dodge

The total fire loss in Fort Dodge, Ia., during 1928 is much lower than that for the year previous. The year passed by without a single life lost at a fire.

Figuring the population of the city at 24,000, Chief H. J. Callahan calculated the per capita loss at $1.09. The average loss at a fire was $167.

Portland, Ore., Has Lineman-Fireman—Commissioner Bigelow of Portland, Ore., is considering two classes of linemen for the fire bureau. One is to be called lineman-fireman and he will have to report at fires, and will be eligible to pension benefits. The other will be termed lineman and will not be called for fire service, and will not enjoy pension benefits.

History and Evolution of Fire Fighting

Firemen Oppose the Latta Steam Fire Engine—Advent of Motor Apparatus—History Continued from Last Issue

By FRED SHEPPERD, Managing Editor of FIRE ENGINEERING

TO MOSES LATTA, of Cincinnati, Ohio, belongs the honor of inventing the first successfully employed steam fire engine. In 1852 the first experimental steam fire engine built by Mr. Latta was tested before the Cincinnati city council and it was proven entirely satisfactory. The experiment was so convincing that the city council contracted with Mr. Latta to build an engine for the fire department use which he immediately proceeded to do and the result

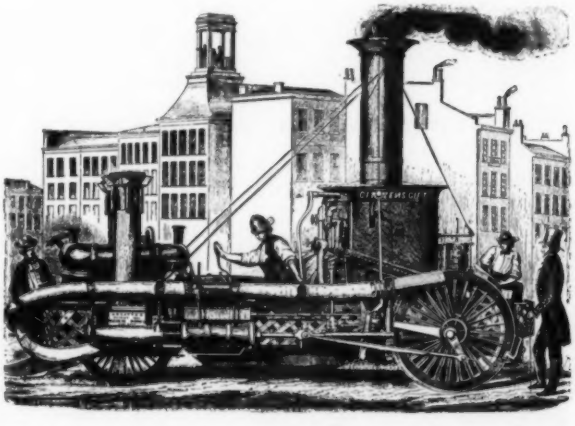


Fig. 13—"Citizens' Gift" Engine of Cincinnati (Built by Latta)

was that he placed before the public the "Joe Ross," the first successful steam fire engine in the world.

The engine which is shown in Fig. 13 was a ponderous self propeller with two rear wheels and one in front, which acted as a steering wheel. The boiler was square and upright and was called the gunpowder boiler. It was so called because steam was generated by flashing cold water into a hot boiler. There were two horizontal cylinders, one on each side; the pumps being in front of the cylinders and direct driven. The engines were made to couple, when required, with driving wheels, which were at the rear. The weight was 22,000 pounds and required four horses which were ridden artillery fashion, besides the propelling power which the machine furnished.

In its official test water was thrown in seven minutes from a 1½ inch nozzle to a distance of 225 feet. Streams were thrown from 2, 4, and 6-inch lines of hose at the same time, each stream capable of doing good fire service.

That opposition developed to the use of the steam fire engine in Cincinnati is indicated by the following statement of Mr. Latta:

"The trouble is that there is no certainty that this, or any other steam fire engine, will ever be allowed to work at a fire. You are probably aware how bitter is the feeling of the volunteer firemen against this engine. They say that it shall never throw a stream of water on a fire in this city; and I sometimes fear that I shall never live to see this grand idea brought into the service of the world. The recent riots here show what a mob can do in our city. My steps are dogged. Spies are continually on my track. I am worried with all sorts of annoymous communications, threatening me with all sorts of ills and evils unless I drop work on this engine, and pronounce it a failure."

Volunteers Oppose the Latta Engine

As the time approached for the trial of the engine, the volunteer firemen were in a ferment. It would never do to destroy the engine before it had trial; and to destroy it after a successful exhibit of its power was made, would be equally useless. So it was understood that no demonstration, pro or con, would be made on it until it should come to a fire, when it was to be rendered useless and all who had a hand in its working were to be rendered useless also.

The public trial came off, and very successfully. The volunteer fire department was there, as almost everyone else, a political ring, far more efficient, under ordinary instances, at the polls than at the fire; and its members, to a man, were selected for their influence at the voting precincts, and for their ability to make the contents of the ballot box, when it was emptied, show, by a large majority, their man ahead—no matter what kind of ballots had gone into it.

At last the crisis came. One night an alarm rang out for a fire in a great warehouse on Third Street near Main. A moment or two elapsed and then down came the great steam fire engine, four mammoth gray horses

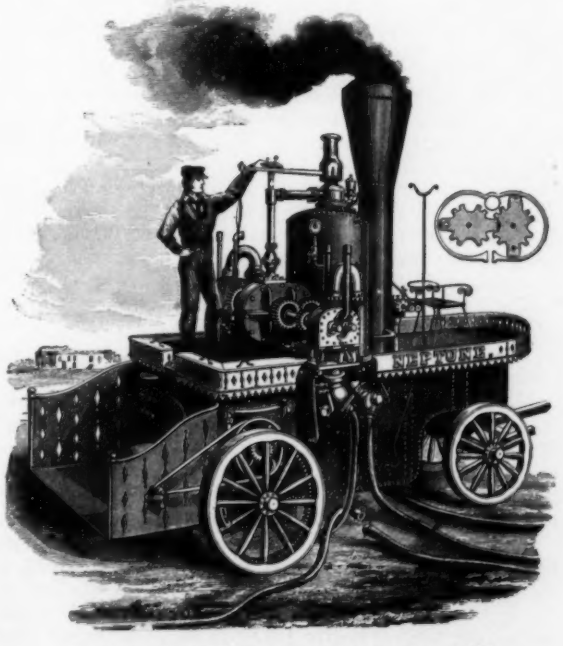


Fig. 14—First Silsby Steam Fire Engine, 1856

in front of it at a gallop. Soon the engine arrived at the fire and four streams were put in operation when the cry, "the hose is cut," rang out. Then the melee began. But the citizens were stronger than the volunteer firemen, and after a struggle the steamer drowned out the fire and was taken home. That was the last vigorous opposition put up by the volunteer firemen against the adoption of the steam engine, with the result that the old

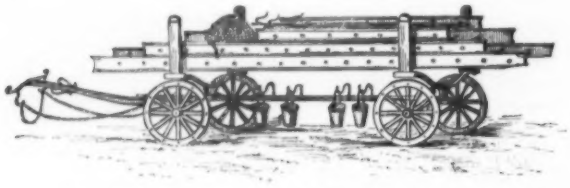


Fig. 15—Oldest Hook and Ladder in New York

"Joe Ross" made a name for itself. For several years the firm of A. B. & E. Latta did quite an extensive business with little or no opposition. In 1863, however, they sold out their business to Lane & Bodley, who in 1868 transferred their business to the Ahrens Manufacturing Company.

Abel Shawk in 1855, built his first steam fire engine in Cincinnati, and afterwards sold four others. Apparently be became discouraged and gave up that line of work. There were a number of other makers who started in business from 1855 onwards, but those products were not on the market long enough to deserve description.

Other Famous Makes of Steam Fire Engines

In 1856 The Silsby Manufacturing Company of Seneca Falls, N. Y. appeared on the scene, building their first engine in that year. This machine is shown in Fig. 14. During the life of this company as an independent company, it built over 1,000 machines. Conspicuous in the Silsby line was the employment of rotary principle both for the steam engine and the pump. In other words, instead of having a steam piston engine, a rotary principle was used. The same principle was used in the pump end, which today is used in a very large number of motor fire engines. In the nineties this company consolidated with the Ahrens Company of Cincinnati, Ohio; Button of Waterford, N. Y.; and Clapp & Jones of Hudson, N. Y. to form what was then known as the American Fire Engine Company.

The Amoskeag steam fire engines were built by the Amoskeag Manufacturing Company of Manchester, N. H., the first being put out in 1859. This company later (1877) became the Manchester Locomotive Works at the same address.

They built approximately 1,500 steamers and their product was one of the best put on the market.

The earlier designs were of the rotary type pump while the later ones were of the piston type.

Clapp & Jones of Hudson, N. Y., were for a long time one of the few firms which were successful builders of steam fire engines. They commenced building them in 1862 and up to the time of their consolidation into the American Fire Engine Company they had put on the market approximately 600 machines.

The Ahrens Manufacturing Company, of Cincinnati, Ohio, who later consolidated with several companies to form the American Fire Engine Company, was one of the largest individual builders of steam fire engines and put on the market nearly 1,000 of their machines. The works originally owned by Latta, the famous inventor and builder of steam fire engines, who sold the business in 1863 to Lane & Bodley. Many of the Ahrens pumpers were still in service when displaced by the introduction of motor fire apparatus.

The LaFrance Fire Engine Company of Elmira, N. Y., taking into consideration that they were one of the youngest of successful firms building steam fire engines made remarkable progress in the field. They entered the field in 1875 and by 1895 had built nearly 500 steamers. Their early pumps were of the rotary pattern.

This company subsequently consolidated with the American Fire Engine Company to create what was for many years known as the American-LaFrance Fire Engine Company.

Two other companies who were prominent in the field of steamers were Ahrens-Fox Fire Engine Company of Cincinnati, Ohio, builders of "Continental" steam fire engines and the Waterous Engine Works Company of St. Paul, builders of the Waterous steamer, and latter the Waterous hose drawn gasoline operated pump.

Mr. Chris Ahrens, mechanical engineer of the American Fire Engine Company and formally of the Ahrens Manufacturing Company, was one of the founders of the Ahrens-Fox Fire Engine Company.

Advent of Motor Fire Apparatus

Motor fire apparatus began to loom up as the successor to the steam fire engine about 1908. As most of our

Fig. 16—Hook and Ladder No. 3, With Ladder Extended

readers can remember back that far, no time will be taken up to trace the developments of motor fire apparatus since that date.

It may suffice to say that at the present time there

(Continued on page 111)

WITH THE EDITOR

Taxing Fire Department Gasoline

A recent ruling by the Tax Commission of Massachusetts exempts the gasoline use by fire apparatus while fighting a fire from the two cents a gallon tax imposed on gasoline in that state, but holds that the gas consumed going to and from the fire is taxable.

It is right and proper that the tax should be remitted in the case of fire apparatus, but why the distinction? The answering of the alarm of fire and the return to quarters so as to be ready for another call, is just as important a part of fire fighting as is the actual pumping of water at a fire. If the apparatus does not answer the alarm, but remains in quarters, it certainly cannot fight the fire; and if it does not return promptly when its services are no longer needed, it cannot be ready and prepared to answer the next summons when it comes.

As a matter of fact, all taxation of fire departments and their apparatus is fundamentally wrong. The fire department is distinctly a non-revenue producing unit of the city government; it is formed solely to protect the citizens from the dangers and losses of fire; it is supported wholly by the taxes paid by the citizens themselves, and it therefore should remain absolutely free from taxation of any kind—national, state or municipal.

Even in the case of a purely volunteer organization, the fire department becomes a distinctly governmental function while engaged in the extinguishment of a fire, including the entire time that it is on duty. It, therefore, should not be required to pay any tax, as it is engaged in work for the city or village. Any taxation of fire departments is basically wrong in principle and practice!

Arson Squads and Reduced Fire Loss

A growing tendency among modern fire departments is the specializing of the work, or at least certain classes of it. Thus, there are formed groups of members who are specially trained in particular functions of the department and who become experts in their particular lines. Salvage, inspection, etc., are features of such special training, and the men set apart to perform such important duties are given thorough instruction in the class of work which their particular branch of fire department labor calls for.

One of the developments of this specialization of fire department work is the so called Arson Squad. On another page is printed an article describing the work of such a body—that of Detroit, Mich. This type of organization can do much to reduce the fire loss—often considerable—from incendiary fires.

The members of the squad are given intensive training in the various duties connected with such specialized work. Among these is the knowledge of the nature and use of evidence. This is of the greatest importance in incendiary cases, as the conviction of the culprit often hangs upon the way in which this evidence is presented.

In this connection, a most important move is at present under way to effect the adoption of a uniform arson law throughout the various states of the Union. Already fifteen of these have adopted the so-called model law, sponsored by the Chamber of Commerce of the United States. California, Maryland and West Virginia, it is hoped, will soon swing into line, as bills are now being considered by the legislatures of these states based on this particular law.

Arson is an evil that most chiefs have to deal with sooner or later. It is an insidious crime that is most hard to apprehend and it is even harder to convict the perpetrator. So that any legislation which will tend to make the fighting of the evil an easier matter is worth working for. In states which have no law of this kind, chiefs should do all they can to assist those working for the enactment of such legislation.

Fire Prevention Via the Schools

An interesting side light on the tragic fire at Watertown, Massachusetts, which resulted in the death of Mrs. "Babe" Ruth has just been brought out. Chief J. W. O'Hearn, of the Fire Department, eminently believes in the proverb that "good cometh out of evil," and in consequence, being also an individual who is ever up and doing, took advantage of the incident to bring home the lessons of fire prevention.

In doing this, the Chief chose the most fallow field he possessed for such work, and devoted his energies to the scholars of the city. In choosing this particular fire to base his remarks upon, he made a wise selection, for two reasons. The first of these was that the case was one in which every one was interested, and secondly, that the fire was manifestly the result of carelessness in electrical wiring.

The interest of the scholars being intrigued by the fact that the person whose life had been lost was the wife of the "King of Swat," the Chief proceeded to point out the results of overloaded wires, and the danger of operating all kinds of electrical appliances on a single circuit. He emphasized the fact that, in order to carry this load, a fuse of double capacity had been

installed. He showed the perils arising from the placing of wires under rugs, causing the insulation to be worn off through the constant passing of feet over the rug's surface, and finally brought out the fact that the fire in question had been caused by a short circuit and the firing of the house wall by an overheated wall plug.

That Chief O'Hearn held the attention of his young auditors need hardly be pointed out. They not only listened attentively, and took in clearly the lessons he intended to emphasize, but—and herein lies the wisdom of the Chief's action—they carried his teachings home to their parents. Thus every one of these scholars became a missionary in fire prevention, and did much to spread the knowledge of care in electrical installation and the avoidance of amateur work in this connection. which, of course, the Chief took good care to condemn in unmeasured terms.

The schools provide one of the best opportunities that the wide awake fire chief can have to bring home to the community which he guards the necessity of care in all matters connected with fire hazards. Not only do the scholars remember the teachings which are brought to them by the Chief, but they also carry these teachings to sympathetic listeners in their homes, and thus a wider influence is attained than by almost any other method of teaching fire prevention.

Photo, Courtesy of The Dallas Journal

Big Men Serve as Fire Department Heads in Dallas

Dallas, Tex., claims the distinction of having the tallest chief and assistant chief of any fire department in the United States. Chief Gambrell at the left, and Assistant Chief Wolff in the center, each measure six and one-half feet. For comparison they are standing besides Captain O. L. Patterson who is five feet, seven inches tall. They are big men in every sense of the word.

San Francisco Has Many Shingle Fires

According to the San Francisco *Chronicle,* aside from grass and rubbish fires, sparks igniting wooden shingle roofs were the cause of 573 property damaging fires in San Francisco during the year 1927. In all there were 6,422 alarms during that time.

Of the total, insurance experts point out 675 false alarms were turned in. Wooden shingles continue to be San Francisco's greatest conflagration menace.

The real danger from this source, says the Underwriters, is because shingles are used mostly in the densely residential sections, where in the event of a disastrous fire the losses would be suffered by a larger number of people and where the possibilities of fatal injuries are more likely to occur.

Rubbish fires caused 1,276 alarms. This is greater than the total number received from hundreds of averaged sized cities throughout the country. Burning chimneys caused 503 fires; smoking caused 483; carelessness with matches, 131; automobiles, 180. Spontaneous combustion was credited with 83 alarms and backfiring of automobiles 86.

Unlike many other cities of the United States where active life intensifies the dangers of fire such as in San Francisco, the city government maintains well trained and expert fire prevention bureaus with a personnel approximating from thirty to fifty men. San Francisco's bureau is a mere skeleton of what the inherent hazards of the city normally demand.

More than 5,500 tarpaulins were spread by patrol crews when entering the burning premises in advance of the firemen in order to protect goods and furnishings from damage. In 1927 the insurance companies expended $100,193.57 in rendering this service to property owners whether insured or not. Approximately twelve fires were "set," according to the fire marshal and five arson convictions were obtained. In addition there were twelve more or less serious fires caused by the explosions of stills.

CHARLES W. GEIGER.

Firemen Keep Child Alive With Oxygen

Doctors who have been attending a twelve-year-old girl in Perry, Kans., as the result of pneumonia, have every hope that the work of two Topeka firemen will save the child's life.

Congestions of the lungs prevented natural respiration and the child lapsed into a coma. Drainage of the lungs had apparently failed to restore normal breathing. Blood transfusions had been performed with no apparent results.

The two firemen worked in twelve-hour shifts administering oxygen for a period of twelve days. The men were rewarded by having the child awaken and whisper feebly, "All right—now." The doctors have every hope now that the child's life will be saved.

Discuss Insurance for Drivers

A conference on the best means of securing automobile liability insurance for the drivers of motor fire apparatus was held recently in the office of the Massachusetts State Firemen's Association in the Old South Building in Boston. The meeting was attended by representatives of the Fire Chiefs' Club of Massachusetts, the Massachusetts Permanent Firemen's Association, and the Massachusetts State Firemen's Association.

Chief John W. O'Hearn, of Watertown; Chief Daniel B. Tierney, of Arlington; and Chief William C. Mahoney represented the chiefs' club. District Chief Thomas Griffin, of Lawrence, Mass.; and Captain Ernest Slattery, of Fitchburg, represented the Permanent Firemen; and Capt. Frederick Thomas, of Worcester; Michael J. McGonagle, of Boston; and Secretary Daniel J. Looney represented the State Firemen's Association.

Fire Chiefs' Club Meets

The January meeting of the Fire Chiefs' Club of Massachusetts was held in the Parker House, Boston, on January 16 with Chief Selden R. Allen, of Brookline, presiding.

Chief Ray D. Wells, of Falmouth, introduced a legislative bill which he has had drawn up to provide for fire apparatus being excepted from the state gasoline tax. The bill received the endorsement of the club after a general discussion of the case.

Announcement was made of the election to membership of Chief James C. Sullivan, of Lowell, and Chief William F. McCall, of Stoneham.

HARRY BELKNAP.

Questions and Answers

NOTE—Readers are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified.

Hazards of a Steam Bakery

To the Editor:

We have been having considerable discussion about a question which one of the men presented for argument recently.

The question is: "What are the Fire Hazards of a Steam Bakery?" We have consulted all of the various books at hand here and have been unable to find anything of definite nature.

Anything you may send me concerning this question will be appreciated.

Answer: The ovens can furnish the most serious hazards in bakeries. Over 30% of the fires in this class of risk are attributed to poorly located, defective, or poorly prepared ovens. Their construction, location and arrangement should receive careful attention. The hazard of a baking oven corresponds to that of a low pressure boiler, and it is poor practice to locate one in a combustible building.

If the oven is not of substantial construction, it will not retain the heat inside as it should, and in this way becomes serious hazard. In many of the older bakeries, ovens are found resting on materials which are not absolutely incombustible. Again, another hazard is involved. If the ovens have not ample clearance between their tops and the ceiling, the ceiling may take fire due to the radiated or convected heat.

The charging door (through which material to be baked is fed) usually consists of a long horizontal opening about 18 inches high. If a metal hood with a metal vent pipe communicating to the outside is not provided over this opening, to carry off the heated air and gases which escape when the doors open, there is possibility of fire starting from this source.

Kettles for frying doughnuts, crullers or fried cakes have been the source of many bad fires. These kettles are almost invariably heated by open flames and if not closely watched the fat becomes too hot or boils over, resulting in a bad fire.

When metal cans are used for containers these are returned to the plant empty, and are cleaned and repaired for use again. The tins are cleaned with a soda solution and with emery and cloth buffing wheel. A metal blower system is necessary to carry the dust from the buffing and polishing wheels to an outside box or barrel of water. If it is not provided, there will be danger of explosion from the dust produced by these devices. Other hazards include tin shop, cooperage and paper box making, the hazards of these industries being well known.

Many bakeries have extensive garages or stables. It is very essential that these be detached or cut-off buildings.

Let us quote from the number of reports of 345 fires on file at the office of the National Fire Protection Association.

Cause	Number	Cause	Number
Ovens	102	Smoking	19
Unknown	47	Lighting	18
Miscellaneous	46	Rubbish	10
Doughnut Kettle	41	Power	5
Heating	26	Exposion	5
Chimney and Flues	23		

Strength of Extinguishers

To the Editor:

As there is considerable difference of opinion among members of this company relative to soda and acid extinguishers exploding, we would appreciate an answer to the following:

"A" says that extinguishers properly filled with sulphuric acid and bicarbonate of soda, tested for 350 pounds, will explode if the nozzle is kept closed while inverted; while "B" says that such extinguishers will not explode if properly tested for the charges of soda and acid for which they are designed.

Respectfully,
Members Truck No. 3.

Answer: Soda and acid extinguishers, if in good condition, and if they have not been weakened through abuse, or deterioration, should not burst if inverted when the nozzle is closed. While the usual operative pressure of a soda and acid extinguisher is in the neighborhood of 125 pounds, the extinguishers are tested to several times that pressure before leaving the factory.

Of course, if the joints of the extinguisher have corroded, or if the extinguisher has otherwise been weakened, there is a possibility of its bursting should the nozzle be stopped up when the extinguisher is inverted and the acid and soda solution brought together.

Atmospheric Pressure

To the Editor:

Will you kindly answer the following question in a future issue of FIRE ENGINEERING.

Question: Books say that atmospheric pressure is greatest at sea level. When you go below sea level does it get greater or less?

Respectfully,
D. A. H.

Answer: Text books say that atmospheric pressure is greatest at sea level. However, when we go below sea level the atmospheric pressure increases. You may consider there is a close similarity between air and water. The greater the depth of water, the greater the pressure you have at the bottom of a tank. Likewise with air pressure, the greater the depth of air you have over a given point, the greater will be the pressure. As you go down below sea level, the depth of the air above the point considered increases with the result that you have a greater atmospheric pressure.

Pressure to Reach Fourth Floor

To the Editor:

I would appreciate your giving me a solution to the following problem at an early date, through your Questions and Answers column.

Question: What engine pressure is required to throw an effective stream from the street into the fourth floor of a building? Hydrant is 400 feet from building—1¼ inch nozzle employed.

Respectfully,
P. C. B.

Answer: In the first place the third floor is the highest floor to which a stream from the street can be thrown with full effectiveness. Above the third floor the effectiveness decreases rapidly. Assuming, however, that you want to get as effective a stream as possible into the fourth floor, the following calculations will answer your question.

Assuming each story is 11 feet high, then the four floors would be 44 feet high—to the ceiling of the fourth floor. The nozzle should be operated from the street at a point from the building equal to this height or 44 feet away from the building.

The actual travel of the stream would be the hypotenuse of a triangle whose two sides are each 44 feet. To secure the

hypotenuse we square each side, add their squares and take the square root of the sum. This gives 62 feet approximately.

You do not state what layout is to be made from the engine to the nozzle but it will be assumed that a single line of 2½ inch hose would be employed. Where the length is 400 feet, the engine pressure will be solved as follows:

Engine pressure = nozzle pressure x (1.1 plus KL)
= 72 x (1.1 plus .248 x 8).

NOTE:—In the above the nozzle pressure is secured by allowing 1 pound pressure for each foot reach desired, and adding on 10 feet additional range for penetration, giving 72 feet total range, and, consequently, 72 pounds necessary at the nozzle.

Engine pressure then solves out to be approximately 222 pounds.

Buffalo Questions and Answers

To the Editor:

I will appreciate very much if you will answer the following questions, asked at a former examination:

1. Could a gas well fire be extinguished with hose streams? Yes or no.

2. A soda and acid extinguisher is lined with . . . or . . . ?

3. Which is the better coating for a ladder, paint or varnish?

4. Are the bottom and top sides of trussed ladders the same? Yes or no.

5. Name the three things which you consider of first importance on arriving at a tenement house fire. (A)— (B)— (C)—

6. How many impellers are there on a multi-stage centrifugal pump?

7. A hose line, through which 200 gallons of water per minute is flowing, has a friction loss of 10 pounds. What will be the theoretical friction loss if 400 gallons per minute is flowing?

8. Is the actual friction loss for the second condition of question 7 higher or lower than the theoretical loss?

9. Does the friction loss in a pipe line increase or diminish after turbulent flow commences?

10. The water in a standpipe is 122 feet above the bottom; what is the pressure per square inch at bottom?

11. Are there any hose nozzles which develop a discharge efficiency as high as 95%? Yes or no.

12. When a stream being thrown on an intense fire seems to be consumed, is the water actually vaporized?

13. What is usually the most objectional feature in fighting a fire on the lee side?

14. The burning of a 10,000-gallon open tank of oil in a frame building is best fought by:

The breaking of fire streams as closely over the tank as possible.
By smothering the fire by closing the doors and windows of building in which tank is located.
By drawing off oil from the bottom of the tank, to let the residue burn out.
By opening the building above the tank, allowing the oil to burn out.

15. Should a fire start in a 6-story building, the most dangerous to fight is as a general rule one:

Starting in the basement.
Starting on the first floor.
Starting on the third floor.
Starting in the cock loft.

16. Are the following materials when ground to a very fine powder and exposed to the air and moisture, explosive?

(A) Aluminum, (B) Copper, (C) Zinc, (D) Zinc and aluminum.

17. Is there any danger of fire from the slaking of lime (a) in an open space, (b) in a closed space?

18. Can a soda and acid extinguisher with a loose stopple be successfully used on an automobile fire truck? Yes or no.

(NOTE:—*Buffalo Questions and their Answers will be concluded in the next issue*—EDITOR.)

Answer:

1. Yes.
2. Lead or tin.
3. Varnish.
4. No.
5. (A) Life hazard; (B) covering exposures; (C) extinguishing fire.
6. Two or more (Multi meaning many, and is commonly accepted in hydraulics as meaning two or more).
7. Friction loss varies approximately as the square of the velocity of flow. Hence if we double the amount of water flowing through a line of hose, we are doubling the velocity of flow and in doubling the velocity of flow the friction loss will be 2×2, or 4 times as much, theoretically. Thus if the friction loss is 10 pounds and 200 gallons are flowing, if we increase the flow to 400 gallons we have 4×10 or 40 pounds theoretical friction loss.

The formula: Friction loss (for 100 feet 2½ inch hose) $= 2 \times Q \times Q + Q$ gives the actual friction loss for the flow which Q represents. This formula is based upon test results and is designed to give actual friction loss figures. However, it does not give exact figures, but only approximate. Nevertheless it is classed as a formula giving real, rather than theoretical results. This is the formula you would use in figuring actual friction loss.

8. By formula the actual friction loss in problem 7 where the flow is 400 gallons per minute, is 36 pounds. This is the friction loss and is less than the theoretical friction loss at the higher flow.
9. Increases.
10. Pressure in pounds per square inch at the bottom of the standpipe equals $122 \times 0.434 = 52.48$ pounds per square inch.
11. Yes.
12. Yes.
13. Heat and smoke.
14. By drawing off oil from the bottom of the tank, to let the residue burn out.
15. Starting in the basement.
16. (A) Aluminum, yes; (B) copper, yes; (C) zinc, yes; (D) zinc and aluminum, yes.
17. (A) An open space, no; (B) a closed space, yes.
18. No.

West Virginia Considering Arson Law

Two bills have been presented to the West Virginia legislature aimed towards having the state adopt the model arson law which is now in force in fifteen states. The principles of the bill are in conformity with policies of the Chamber of Commerce of the United States as adopted by the resolution of the members at the Eighth Annual Meeting in 1929.

Pasadena Places "Coffee Car" in Service

A specially constructed car equipped with a coffee urn, sink, ice box, dishes, fresh water tank and food supplies has been placed in service in Pasadena, Cal. It is to be serviced by women of that city. The new kitchen is driven close to the scene of large fires and hot coffee and food is served to the firemen.

NIGHT CLUB BLAZE SPREADS TO FIVE ALARM PROPORTION

Firemen Hampered by Intense Cold Weather—Club Located on Second Floor of Two-Story Building Area With Gas Station at Main Section

BY WM. JEROME DALY

FIRE swept the two-story brick triangular block bounded by Broadway and St. Nicholas avenue from 170th to 171st streets, in the heart of the Washington Heights section of Manhattan Island early on the morning of January 14th. The thermometer registered 8 degrees above. The blaze started in some part of the Green Mill Club, situated on the corner of Broadway and 171st Street, but before it was discovered, the flames were shooting out the windows and showing through the roof.

The nearest engine company, just a block away, had its short run to the scene lighted brilliantly by the tongues of fire shooting skyward. The first alarm was sounded by a passing taxicab driver at 4.40 o'clock. He pulled the street box and Acting Battalion Chief Michael Nugent sounded the second and third alarms in quick succession—the second at 4.46 and the third at 4.47. A hanging ceiling covered the entire block. An attempt by hook and ladder companies to cut open the roof and head the flames off proved futile. They gained such rapid headway that the truck men were ordered to back down.

Deputy Chief John F. King sounded a fourth alarm at 5.03 o'clock bringing Assistant Chief of Department Joseph B. Martin. The latter sent in a fifth call at 5.54. The extreme cold, aided by a high wind, hampered the firemen, all working from exterior positions. The fire never dropped to the stores below, but these

Five Alarms Were Turned in to Fight This Second-Story Blaze

suffered severe water damage. Under the Green Mill Club was the Bank of Washington Heights. It had no watchman. The other occupancies were automobile sales rooms and twenty-seven other forms of commercial and industrial activity.

At the apex of the triangle was a gasoline selling station, as shown in the photograph. The tanks, as required by law, were under the sidewalk.

It was the Green Mill Club's finale—the management having decided not to reopen after closing early that morning, but it has not been determined what caused the fire. Night clubs in New York are required by law to close at three o'clock in the morning.

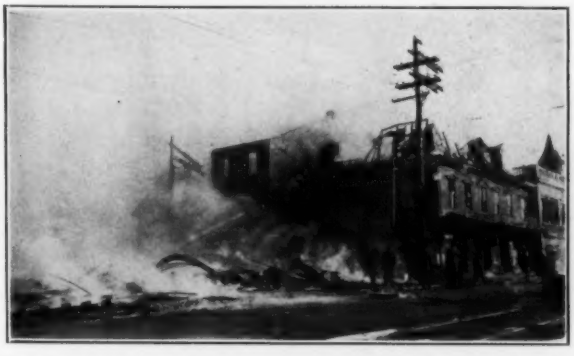
Rockland, Mass., Has Big Fire

Poor water pressure, high wind, and near zero temperature hampered firemen who fought a blaze in Rockland, Mass., on Jan. 14, which broke out in the basement of the Phoenix Block from an overheated furnace and spread to other frame buildings on either side and in the rear.

Chief Clyson P. Inkley, of Rockland, summoned aid from Brockton and Abington as soon as it appeared evident that the flames would sweep the frame Phoenix Building. As other structures became involved he sent calls for more apparatus from outside towns including Weymouth, Hanover, Hingham, Marshfield, and Quincy.

The fire was in the heart of the congested mercantile section of the town and spread rapidly after its discovery about 10:40 A. M. One fireman from Abington was seriously injured in a fall from a ladder and several firemen were overcome by smoke. All suffered severely from the cold.

The Phoenix Building was completely leveled, the 3-story Bemis and Cooper building was destroyed, and the old Standard Building at Park and Union Streets was burned out in the upper floor and roof when the flames crossed Park Street after the walls of the Phoenix Building collapsed. Several frame buildings in the rear of these structures were also burned. A number



The Result of an Overheated Furnace in a Frame Building

of roof fires were extinguished without serious loss. The total damage caused was estimated at $350,000.

Chief Frank F. Dickinson responded from Brockton with a 750 gal. Seagrave pumper and Seagrave combination hose and chemical.

Chief John Q. Hunt, of Weymouth, responded with a 750 gal. Seagrave pumper, 750 gal. Knox pumper, and Seagrave city service ladder truck.

Abington sent a 750 Seagrave pumper, in charge of Capt. Carl Shaw.

Quincy sent a 750 gal. Seagrave pumper.

Rockland had in use Engine 1, 750 gal. American-LaFrance pumper, American-LaFrance chemical and hose wagon, and American-LaFrance city service ladder truck.

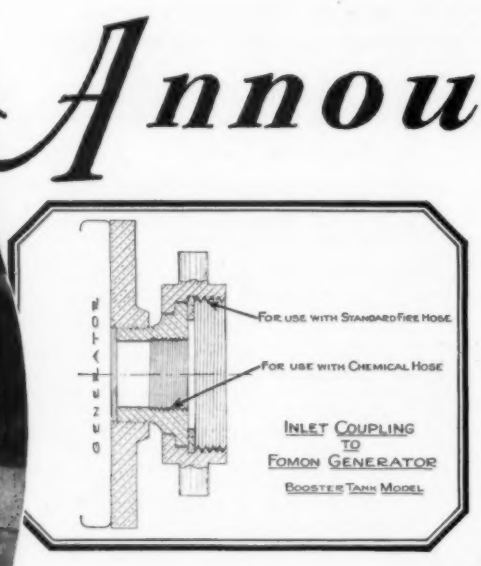
HARRY BELKNAP.

Chief Myers of Toledo to Receive Cup—The fire prevention committee of the Toledo Safety Council will present a silver loving cup to Chief Fred J. Myers for his work in lowering the fire losses $100,000 during the past year. This is the third successive year that the fire losses in Toledo have shown a decided reduction.

Five-Alarm Call in New York City Caused by Loft Fire

A fire that broke out in a loft building on Fifth avenue in New York City caused five alarms to be turned in and made a maze out of traffic conditions. The photograph shows firemen located in nearby buildings directing the streams onto the burning loft structure.

Announcing



THREE NEW

The new **FOMON BOOSTER TANK SIZE GENERATOR** is a smaller capacity generator of the same design and construction as the standard size. It meets a need for a generator which will not drain booster tank water supply too quickly, but which also can be used with regular water supply.

With this generator, tanks formerly devoted to foam solutions can now carry water instead—making available both foam or water on the apparatus itself. A single container of Fomon chemicals will supply foam equivalent to a forty gallon tank.

The **FOMON TWO-IN-ONE COUPLING**, illustrated in the sketch above, makes it possible to use the generator with both the chemical size hose, usually employed with booster tanks, or with standard 2½" hose, ***without change of coupling or use of an adapter!*** This feature offers the tremendous advantage of making the generator available for use away from the apparatus and booster tank, employing regular hose lines.

Desirable franchises open for agents and representatives

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...g~ FOMON FEATURES

The new COMBINATION HOPPER-COVER for all Fomon Fire Department Generators acts as a complete protection for the generator contained beneath. At the same time it is quickly removable and completely assembled by reversing the hopper-cover. It gives neat, compact and serviceable protection for generators mounted on apparatus.

With the three new Fomon features shown above and to the left, Fomon offers complete fire department foam equipment. The standard size Fomon Generators for use in the field offer the interchangeable features of operating either for producing foam direct or for producing foam solutions. Two generators (one for each of the two solutions) may be used in this way.

The Booster Tank Size Generator replaces the old foam solutions carried in tanks on apparatus, supplying more than their equivalent foam protection and at the same time providing a reserve water supply for ordinary fires.

The FOMON TWO-IN-ONE COUPLING renders the Booster Tank Generator an effective unit for use in the field with 2½ inch hose, as well as with the tanks, without requiring any change or adapter.

Fomon Generators are also available in larger sizes (but are not recommended for Fire Department use, as they require equipment of greater capacity than is universally found in fire departments.) Series of standard or booster tank size generators will accomplish the same purpose with greater flexibility.

Use the coupon below for complete information on all Fomon equipment.

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American Fomon Company, Phila., Pa.
Please send me full information on latest Fomon equipment.

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Christmas Morning Fire Takes Six Lives

Six persons are dead as a result of a fire that swept through the Park Hotel at Akron, Ohio, on Christmas morning. Others were badly burned. The hotel housed eighty-five guests, most of whom are employed by the Akron rubber industries. The hotel was constructed of brick.

WHAT'S BURNING

THE following list includes fires of $25,000 loss and over in the United States and Canada, for the periods designated in the headings. These figures, compiled from telegraphic reports, are based on estimates made at the time, and are subject to later investigation and consequent revision. Taken as a whole, however, they give an approximately correct view of the losses incurred. The figures represent loss in thousands.

Week Ending January 25

SUPERIOR, WIS.—Russell Block damaged	35
FOREST GROVE, ORE.—Three buildings destroyed	40
CHILOQUIN, ORE.—Lumber whse. of Braymill White Pine Co.	25
BOONVILLE, IND.—Erie Canal Coal Company destroyed	35
DEPOSIT, N. Y.—Bassin Dept. store and adj. property	80
SARATOGA SPRINGS, N. Y.—Hotel on Broadway destroyed	25
KINGSTON, N. Y.—Warren building, Fair St., damaged	35
ROCHESTER, PA.—Rochester Trust Co. bldg and adj. property	400
DELAWARE, OHIO.—Boston store and adj. property	45
MORRISTOWN, N. J.—Home of Chas. H. Mellon damaged	65
ALBERT LEA, MINN.—First Presbyterian Church	75
ST. JOSEPH, MO.—Page Coffee Mills damaged	60
DAVENPORT, MASS.—Bldgs. of J. E. Day Company	25
HOLCOMBE, WISC.—Store of C. W. Dodge & Sons	40
SKYLAND, N. C.—Mineral Springs Hotel destroyed	30
CHICAGO, ILL.—742 W. Taylor St. damaged	165
WOONSOCKET, R. I.—Bldg. owned by A. P. Belleven	65
WAUSAN, WISC.—Several business establishments	75
CLEVELAND, O.—Bldg. occupied by General Glass Co.	40
LAWRENCEVILLE, N. J.—Rufus Dawes school destroyed	65
TAMPA, FLA.—Furniture factory of Fla. Mattress Co.	60
MORGANSFIELD, KY.—A. C. Hancock market destroyed	35
JERSEY CITY, N. J.—James Fitzgerald box factory	85
NIAGARA FALLS, N. Y.—Brick bldg., 340 Third St., damaged	80
PURCELL, OKLA.—Bldgs. of Okla. Terminal Elevator Co.	125
LITTLE ROCK, ARK.—Fones Bros. whse. & adj. prop.	60
WEYMOUTH LANDING, MASS.—Fire station and adj. prop.	25
SHENANDOAH, PA.—Shenandoah Abattoir, whse. & stable	35
LEACH STATION, KY.—Ashland Refining Co., plant damaged	125
TOPEKA, KANS.—Trinity Lutheran Church destroyed	85
ALBANY, N. Y.—Sons of Italy hall & adj. bldgs.	130
DEVON, PA.—Valley Forge Military Academy destroyed	300
FREDRICTON, N. B.—Four business bldgs. destroyed	165
IPSWICH, MASS.—Breenwood bldg. damaged	80
SAVANNAH, GA.—Guards Armory destroyed	80
EASTPORT, ME.—Schooner "Kingsway" destroyed	40
WASHINGTON, D. C.—Dulin & Martin store	250
WALNUT RIDGE, ARK.—Plant of Phoenix Cotton Oil Mill	40
SOUTH BEND, IND.—Hook Drug Store, adj. property	80
KAPUSKASING, ONT.—Circle Hotel and other property	65
DANVILLE, VA.—Acres Whse. and adj. bldgs.	80
WILMINGTON, DEL.—Deakyne's restaurant damaged	40
PALATKA, FLA.—Mill of Wilson Cypress Co. destroyed	400
NEWARK, N. J.—St. Columba's R. C. church damaged	75
STATEN ISLAND, N. Y.—Unit of St. George Apts.	200

Week Ending February 1

TOWNVILLE, PA.—General store, adj. property	25
HOCKESSIN, DEL.—Plant of Golding & Sons Co.	65
LA PORTE, IND.—Business and apt. block destroyer	30
ATLANTIC CITY, N. J.—Central Pier destroyed	400
KENOSHA, WISC.—Several business establishments	65
LOUISVILLE, KY.—Property of D. M. Marks Mercantile Co.	40
BURLINGTON, VT.—Hayward Block on Main Street	65
CAMBRIDGE, MASS.—Whse. of Friedman Plumbing Co.	50
BELLEVILLE, ONT.—St. Michael's Academy destroyed	100
NASHVILLE, TENN.—Harding Court damaged	200
NORWALK, CONN.—Thomas Fitch School destroyed	30
PLATTSBURG, N. Y.—Plattsburg Normal School	200
STOVALL, N. C.—Business property destroyed	40
OTTAWA, ILL.—Whse. of National Plate Glass Co.	180
MISHAWAKA, IND.—Gilbert store and adj. property	125
ILWACO, WASH.—Saunders Motor Co. destroyed	25
BUTTE, MONT.—Bldg. occupied by Butte Cab Co.	100
LLOYDMINSTER, SASK.—Empress Theatre, adj. property	30
CHICAGO, ILL.—Granada Restaurant, Sheridan Rd.	25
HILLSBORO, ILL.—Property of Chas. Ramsey estate	80
PEORIA, ILL.—Brady & O'Meara Candy Co.	25
FORT JACKSON, N. Y.—L. L. Grow store, adj. property	65
BELTON, TEX.—Luther Hall, Baylor College	125
CALIFORNIA, MO.—School bldg. destroyed	30
WILMINGTON, OHIO—Tanks of Wilmington Oil Co.	35
KENTVILLE, N. S.—Seeley block destroyed	40
LAKE HOPATCONG, N. J.—Rock Lawn Hse., Chestnut Pt. Rd	25
ST. PAUL, MINN.—Commission Row Bldg. destroyed	150
POLSON, MONT.—Plant of Polson Milling Co.	70
ROCHESTER, N. Y.—Two barns of H. C. Kelly, Buffalo Rd.	25
AUGUSTA, ME.—Plant of Newhall & Hanson Co.	165
IRRICANA, ALTA.—Garage of McCulough Hardware Co.	25
ANACONDA, MONT.—Sun Dial Theatre, adj. property	165
WOODSTOCK, ONT.—Bldg. of La France Plushes Ltd.	165
ENGLEWOOD, N. J.—Residence of M. E. Melcher	30
SALISBURG, MD.—Peninsula Hotel destroyed	125
NEW MARKET, N. J.—High school bldg. destroyed	90
CEDAR RAPIDS, IA.—Harrison School destroyed	70
OSAGE, IA.—Business block destroyed	65
ROUSEVILLE, PA.—Plant of Rouseville Cooperage Co.	165
NANTICOKE, PA.—Lutz residence and several others	60
CHICAGO, ILL.—South Shore Wet Wash Laundry	125
BOTHWELL, ONT.—Public hall and adj. property	30
WESTPORT, CONN.—Hartman Block Boston Post Rd.	165
JORDAN, N. Y.—Jordan High School	125
SOUTHINGTON, CONN.—St. Paul's M. E. Church	30
TERRELL, TEX.—Hotel Walton damaged	30
DERMOTT, ARK.—Kiln of Bimel-Ashcroft Mfg. Co.	60
PITTSBURGH, PA.—Cyclorama Hall and adj. property	200
ST. JOHNS, MICH.—Business district damaged	125

Macon Loss Overestimated

In the January 11 issue, under "What's Burning," was listed the loss of the Southern Crate and Veneer Co., plant in Macon, Ga., at a loss of $125,000.

Chief Williams writes that this is an error and the department has no record of ever having been called to fight a fire in this plant. The fire losses for the past year in Macon have totaled but $98,071.

Three Warehouses Destroyed in Chicago

Early morning traffic in Chicago near the water was tied up by a fire that destroyed three warehouses with a resulting damage of almost $1,000,000.

The property, owned by the Producers Warehouse Co., covering an area of 175 by 200 feet, consisted of very old buildings

Fighting a Warehouse Fire on Chicago's Water Front

two stories high, constructed of ordinary brick. There were partition walls constructed of brick but no sprinkler equipment.

The fire started in the basement from an undetermined cause and burned for over eleven hours. When the first company

arrived, the fire was burning fiercely on all floors and in the basement.

Freight cars were in the way of the department. The five alarms called out 185 firemen, one fireboat, 23 pumpers, three truck companies, one water tower, two squad companies and one high pressure company.

Water was available at thirty pounds pressure. Lines were laid from eight hydrants. The hydrants were served by 24, 12 and eight-inch mains. No fault was found with the water supply. In addition to the city water system, some water was pumped from the Chicago river.

After the fire it was found that the fire doors between the east and west sections were open and doors leading to the south section were closed. The first and second floors were heavily loaded with sugar stored in bags, stoves, canned goods, bales of waste and so forth. The damage was estimated at close to $1,000,000.

Salvage Covers Help to Reduce Fire Loss

A visitor to the plant of the Fulton Bag and Cotton Mills, in Atlanta, Ga., manufacturers of "Shuredry" salvage covers, will hear a number of interesting stories to show the value of such covers in fire department and civic work.

A mid-western city was visited by a windstorm which had done considerable damage. While the storm was in progress, the company wired the local fire chief that they would do all they could to immediately ship all the salvage covers that might be needed to protect exposed homes from the elements. No reply was received to this message. Some time later it was learned that nearby departments had loaned sufficient covers to the local chief to meet the emergency. Thousands of dollars of possible property damage was thus eliminated.

Thief Poses as N. Y. Fireman

A uniform coat, cap and cap badge No. 5580 were stolen from Hook and Ladder Co. 32, New York City while the company was responding to a station. Since that incident the Fire Department Headquarters has been receiving a number of complaints concerning a man in fireman's uniform who has been defrauding merchants and storekeepers. Company commanders were directed to keep a sharp lookout for this man. A fireman on theatre detail apprehended the thief.

Gamewell Employees Enjoy Annual Dinner

The annual dinner of the employees of the Gamewell Company, tendered by V. C. Stanley, president of the company, took place at the Newton Center, Mass., Women's Club on January 19. There were approximately 425 in attendance on this occasion.

Following the dinner there was a distribution of one hundred gifts to employees of the company. The illustration on this page shows a view of the banquet.

How it Feels to be "Dead"

Firemen who have been unlucky enough to be rendered unconscious by smoke and gas fumes, may appreciate the following narrative published in *The Georgian* of Atlanta, Ga.:

"I heard them say I was dead. The words came as if from a vast distance. I thought maybe I was dead. Something was said about the heater. I thought of gas. That must be it—gas."

Like a man in a dream who is pursued by grotesque shapes, but cannot run and is held rooted to his terror, J. S. Sheppard, thirty-five, of 35 Forrest Avenue, lay in his bed helpless before the menace of gas escaping from a heater.

He knew something was horribly wrong, but he couldn't stir. As if bound to the bed, he was forced to lie and feel consciousness—life itself—slipping from him, slowly, inexorably.

Vague figures flitted into the room. He heard himself pronounced dead!

But then after a dark fantastic age, life surged back.

Here is the story as Sheppard himself tells it.

"It was intensely cold the other night. I woke about five o'clock and got up and lit the heater, so the room would be warm when I dressed an hour or two later. I thought I'd go back to sleep. Somehow I couldn't sleep. I tossed and tossed. At last I knew that something was terribly wrong. But I couldn't figure what.

"My eyes and nose and throat began to burn. I thought I'd get up and find out what was wrong. But, with a terror I can't describe, I found I couldn't stir. It was just as if I had been chained to the bed. I was helpless.

"My head began to feel as if it would burst. A stream of light came in through a crack in the window, and I kept my eyes on that. It seemed the only real waking thing left in this nightmare of horror.

"But gradually the light began to fade. It blurred and went out. A drowsy, dense blankness stole over me. I know how death feels when a sick man approaches it fuily conscious.

"I thought of my wife and little boy. They seemed to stand vividly before me, although they were far away at the time. Then everything went as black and blank as if I had been thrown two hundred feet underground.

"Men came in and threw open the windows—of course, I didn't know this until afterward—but the blackness began drifting aside. I began to come back to life. I could feel it. A sense of things around me gradually returned. But I was as helpless as a statue; I couldn't budge. To my horror I heard a man's voice say:

"'I'm afraid he's dead. He's stopped breathing.'

"I wanted to yell at him, but I couldn't make a sound. There I was.

"Fortunately, the firemen didn't give up. The four men to whom I own my life—Assistant Chief O. J. Parker, M. A. Dooly, W. L. Winslerr and C. C. Davis—worked over me with an inhalator for an hour and a half.

"Finally they were convinced I was alive. I had known it all along, but hadn't been able to tell them.

"What a wonderful thing that machine is! And how grate-

Annual Dinner Tendered to the Employees of the Gamewell Company by President V. C. Stanley at the Newton Center, Mass., Women's Club on January 16.

ful I am to those firemen. When I finally came to completely I was so glad to be alive that I didn't notice the sickness and pain that experience left with me.

"My first thought when I came out of the shadows, was of some notes I had left on a shelf. I don't know why I thought of them.

"Beyond a sore side and back, caused probably by the long period of artificial breathing, I feel fine now. I'll soon be fit for a good day's work."

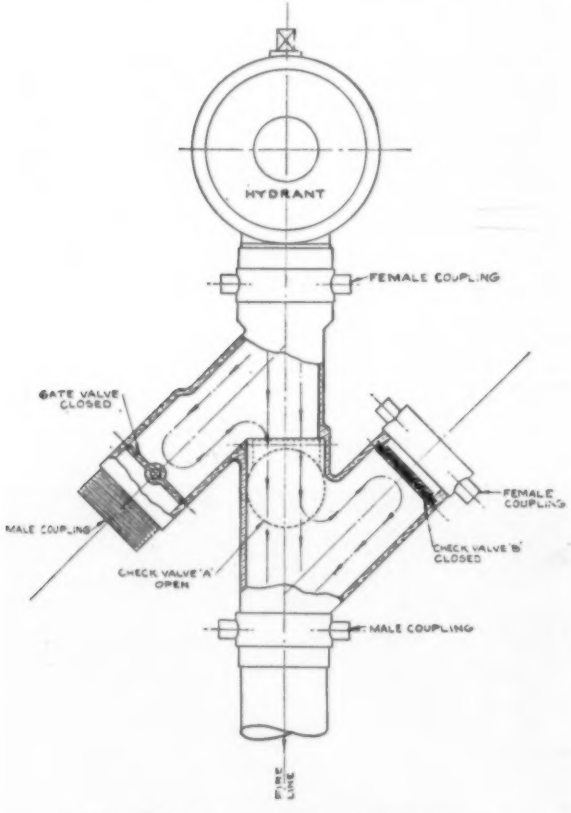
Chief O'Hearn Host to Box 52 Group

On January 16 the members of the Box 52 Association, Inc., of Boston, Mass., headed by President P. Hildreth Parker and Secretary Harry J. Rockett, went to Watertown where they were entertained by Chief John W. O'Hearn at the Central Fire Station with a demonstration of Fyre Freeze extinguishers after which a visit was made to the factory of the Vose Piano Company where a buffet lunch was served following a tour of inspection. Chief William H. Hill, of Belmont, and Chief James M. Casey, of Cambridge, were among the guests on the trip.

HARRY BELKNAP.

Automatic Hydrant Valve on Market

Lieut. V. O'Connor of Oakland, Cal., has designed an automatic hydrant valve to eliminate the troubles now confronting men who have to change hose lines so that they will be fed



Automatic Valve as Need for Hydrant Stream

from a pumper instead of a hydrant or vice versa. As it is now, it is necessary to shut down the hydrant in order to make the pump connection. With the new device a continuous stream is possible because the pump can be connected and pressure applied while water continues to flow.

The valve almost resembles a siamese with the exception that each side has two openings, one of which is controlled by a gate valve and the other by check valves. The operation is positive and entirely automatic. It is built of brass and designed to give many years of service.

Railway Agents Turn Inspectors

Early in November, a letter was addressed to Northwestern Pacific Railroad station agents asking them to assist in fire prevention of property in their charge, by making a thorough inspection to discover hazards, peculiar to the fall and winter season.

Inclosed were three copies of a questionnaire dealing with the heating and lighting fire hazards. Agents were asked, following their inspection, to send one copy of this to the Safety Department, one to the general superintendent, retaining the other for his own information. The questions, all of which can be answered yes or no, were divided under four headings. Five of them related to electric lighting, five to kerosene lighting, six to stoves, and four to general hazards.

Most of the agents did not content themselves with yes or no answers, but added valuable data that will be of much assistance in further lessening the fire hazard in the company's property.

CHARLES W. GEIGER.

Box 4 Holds Annual Dinner

The eighth annual banquet of the Box 4 Associates of Worcester, Mass., was held on Jan. 19 in the Hotel Warren at Worcester. The speaker of the evening was Commander E. T. Enright, U. S. N. He described the work of the navy at the Submarine S-4 disaster off Provincetown, where he was on one of the salvage vessels. Mayor Michael J. O'Hara and Chief Charles L. McCarthy, of the Worcester Fire Department, also spoke.

Among the guests were Supt. William H. Guertin, of the Fire Insurance Patrol; Supt. Morey F. Orrell, of the fire alarm telegraph; and John Horgan, clerk of the Worcester fire department.

The officers of the Box 4 Associates are Otis C. White, president; Howard A. Nash, vice-president; Cyril C. Lawton, secretary-treasurer; and Ernest P. Bennett, William H. Lewis, Clarence E. Robbins, and Ralph A. Robbins, executive board.

Aviator Serves as Fire Alarm

An aviator operating on the night mail route between Atlanta, Ga., and Richmond, Va., has been instrumental in discovering fires and sounding warnings—three times within a period of two weeks. High up in his plane he is able to view many square miles of the city. When he notices a fire, he swoops down just over the building, and the roar of his motor serves to act as a fire alarm signal.

Farm Fires Cause Large Losses

Fire prevention on the farms of the United States would save $150,000,000 annually if completely successful, say engineers of the United States Department of Agriculture.

Farm fires are also responsible for an average loss of about 3,500 lives each year. The principal causes of farm fires and damage as compiled by the engineers are: spontaneous ignition of agricultural products, $30,000,000 annually; lightning, $21,650,000; defective chimneys and flues, $20,125,000; sparks on combustible roofs, $9,350,000; careless use and storage of gasoline and kerosene, $6,650,000; defective heating equipment, $6,375,000; and faulty wiring and improper use of electrical appliances, $1,225,000. Fires of miscellaneous known origin account for more than $12,000,000 of the annual loss; and $30,000,000 in damage is from causes not identified. This loss from unknown causes combined with the annual loss from spontaneous ignition represents forty per cent. of the total farm fire loss.

New York to Erect Five New Houses—New York City has awarded contracts for five new fire engine houses, approximating $65,000 each. They are principally in the suburban parts of the city.

New York Has 560 Men on Sick List—Due to the present influenza epidemic, as many as 560 members of the department were on the sick list at one time during January. Three of the eleven medical officers were among the patients.

Cornerstone From First House in Museum—The cornerstone taken from the first fire station ever erected in San Antonio, Tex., has been presented to the Alamo Museum. The fire house was erected in 1870 on the site of the present central station.

History of Fire Fighting

(*Continued from page* 100)

are few indeed, of the steam fire engines still in active service. In practically every case where they are employed they are used as reserve machines rather than machines for regular duty.

Ladder Trucks

Ladders have been used in fire fighting from the earliest ages. Ancient manuscript indicates that they were employed in protecting property as far back as 500 B. C. Prior to that period it is believed they were used for other purposes, if not for fire fighting, such as scaling walls and other military operations.

The earliest use of regular ladder trucks dates back to about 1815 in the United States. Naturally the first truck was hand drawn.

It is shown in Fig. 15. Notice the rope coiled on top of the truck; this was used for rescue purposes as well as for pulling the wagon by hand. Also notice the hooks of the hook ladder on top of the truck.

As far as can be determined the first aerial ladder was built around 1860. Records show that such a ladder was placed in service in the New York fire department in 1861. It is shown in Fig. 16. It is of the typical type construction, having one butt ladder and one fly ladder, but all operations in elevating and extending were done by hand. This ladder was designed to be towed either by hand or by horses.

In view of the fact that such ladders were available for general use by 1864, it is rather surprising that none of the pictures taken of fires from 1864 to 1867 in New York City show the use of any of these ladders. It is presumed, however, that as the subsequent years arrived more confidence was had in their ability to withstand load and as a result they were more generally employed.

From 1868 on, improvements were gradually made in the aerial ladder truck with the result that we now have a finished product which is mechanically perfect, and fast in operation.

(*To be continued*)

* From a paper read before the annual convention of the Pacific Coast Association of Fire Chiefs at Sacramento, Cal., Oct. 1-6, 1928.

CORRESPONDENCE

(*Continued from page* 96)

forty years of age with twenty-one years of service in the fire department and the patrol. Pipemen and truckmen doing duty in the congested value districts of our large cities, where such buildings are generally located, average ten years less in age, and certainly should equal that time.

The method which I advocate would be to lead three-inch hose up the stairway and build down with two and one-half inch hose to meet the three inch.

The officer in command can use his judgment in sending up the three-inch lead. If inside balconies or stairwells make the fire escape hook the most practical he can use that method. All available men can be sent to the upper floors with "donuts," as rolled lengths are called in our city. Should a surplus be brought to the upper floors it can be used for additional lines or for replacing bursted lengths. Officers should be distributed along the line to see that the hose is connected, stretched in as straight a line as possible, strapped and the order for water promptly transmitted.

In such an emergency water is urgently needed and a one-and one-eighth inch stream, if available quickly, will extinguish the large majority of fires that occur in buildings of that type. Nothing but man power prevents the stretching of additional lines to produce heavier streams. Under test conditions twenty-eight men can place a stream in operation on the thirtieth floor in thirteen minutes or less, which time cannot be equalled by any outside stretch suggested to date in your columns.

It is understood that only cotton jacketed, rubber lined, standard fire hose is to be used in such a test.

A point that I believe should be mentioned in connection with fires of that type is that a commanding officer, upon arrival at a fire showing on any floor above the twentieth floor, should immediately start a three inch line up the stairway to prepare for the failure of the standpipe. If that procedure becomes standard practice considerable time will be gained should the standpipes and elevators fail.

A commanding officer confronted with such an emergency can take no chances. He knows that hose can surely be stretched wherever men can travel, and that an outside stretch at that height, under most fire conditions, is more likely to meet with failure or serious loss of time.

FIRE ENGINEERING is considered the authority on fire practice, and I believe that they should sponsor further tests on that important subject, and give to the fire fighting forces a standard practice to be used in emergencies of that nature.

Yours very truly,
FRANK C. MCAULIFFE,
Chief of Patrols, Chicago.

Hose Coupling Standardization in New Mexico

To the Editor:

I have read with a great deal of interest the article "Standardize Your Hose Couplings" in the January 23 issue of FIRE ENGINEERING.

I noticed that on the map accompanying the article that New Mexico is listed among the states not having standardized hose couplings.

About two years ago, when the A. T. & S. F. Ry. Co. was standardizing hose threads along the system, they also gave the towns along the route an opportunity to do likewise. And I think that nearly all the towns in the state have taken advantage of this opportunity. Among the towns which have made this change are Albuquerque, Roswell, Clovis, Las Vegas, Santa Fe, Deming, Socorro, Clayton, Raton and Gallup.

The A. T. & S. F. Ry. Co. has a set of these tools here at Albuquerque at all times and any town which has not changed hose threads is welcome to use them at any time.

Trusting that you will find this information of some use, I am,
Very truly yours,
THEODORE A. ROSENWALD,
Secretary New Mexico State Firemen's Association.
ALBUQUERQUE, N. M., January 30, 1929.

Riverhead, N. Y., Wants New Headquarters—The firemen of Riverhead, N. Y., are striving for a new headquarters station.

Bethlehem, Pa., Wants New Fire Alarm—In his annual message, the mayor of Bethlehem, Pa., has asked for a modern fire alarm system.

Officer Killed in Newark Factory Fire

A captain was killed when a brick and steel smokestack crashed through the roof of a fire-swept factory in Newark, N. J. Three firemen escaped death by jumping from the roof before the smokestack fell.

NEW STANDPIPE RULES ADOPTED FOR THE CITY OF NEW YORK

Board of Standards and Appeals Formulates New Regulations—To Be Published in Their Entirety in These Columns

HEREWITH is continued from the January 23 issue the new "Standpipe-Fire Line Rules" of New York City. The original rules were adopted by the Board of Standards and Appeals of that city on June 22, 1922, were amended July 20, 1923, and again on May 18, 1928. The finally adopted form, as reproduced herewith, was adopted July 20, 1928. Through the courtesy of Chairman William E. Walsh, of the Board, FIRE ENGINEERING *is enabled to publish the entire new rules serially.*

These new rules are formulated largely through the efforts of Peter J. Maher, Fire Prevention Inspector attached to the Division of Fire Appliances of the New York Fire Department.

Rule 50. RELAY STANDPIPE SYSTEM.—All buildings hereafter erected exceeding 400 ft. from grade to highest hose outlet shall be provided with an intermediate combination gravity and suction standpipe supply tank and a fire pump as required under Schedule A.

Each tank shall have at least 5,000 gallons of water reserved for the fire lines and shall be connected to fire line system as described in Rule 30 for intermediate tanks except that in addition to the requirements of Rule 30, there shall be provided a long turn by-pass 8 inches in diameter around the tank check-valve and the O. S. & Y. gate valves. An 8-inch O. S. & Y. gate valve SEALED CLOSED shall be provided in the by-pass line.

Each tank shall be provided with overflow and emergency drain lines as required in Rules 19 and 20, except that such lines shall drain to roofs of set backs on building, or into house drain lines providing the house drain line or lines are equal in sum total to the sum total in diameter of the drain lines.

The fire pump shall have a capacity of not less than 750 gallons of water per minute and shall deliver through the standpipe main feed riser at a pressure not less than 50 lbs. to the square inch at the highest hose outlet fed by said pump.

All fire pumps shall be located on a raised base at least 24 inches above the floor and on the floor below the supply tank, with the suction line as direct as practicable.

The pump discharge line shall be connected to the main feed riser feeding up, and outside the horizontal tank check valve line, and the upward swinging check valve in the main riser. An O. S. & Y. gate valve shall be provided at a point between the pump discharge connection and the upward swinging check valve SEALED OPEN.

The fire pump and motor shall be located in a watertight room as close to fire tower as practicable, properly drained by a 3-inch line to house drain or scuppers in exterior wall. The electric switch controlling the motor shall be marked on panel "FIRE PUMP SWITCH" in 1 inch white letters on a red background.

Rule 51. NUMBERING ON VALVES.—All gate valves on tanks, fire lines and pumps shall be numbered by 3-inch red metal disc with white numbers 2 inches high secured to wheel of valves.

Rule 52. PUMP ROOM DIAGRAM.—A white and black print drawn to a scale of one-quarter inch to the foot shall be provided in a glass frame showing the tank, fire pump, all pipe lines and valves. The number of each valve shall be shown in addition to purpose of each water line.

The print shall include instructions as to method of starting and operating pump, closing main line, gate valve and opening by-pass valve.

Rule 53. FIRE LINE TELEPHONE.—In all buildings where a variable speed control of fire pump motors is required there shall be provided a multiple telephone system with a master telephone in each pump room, and in the main lobby and individual telephones located on alternate floors near the main fire line riser.

The operation of the system shall be such that any individual telephone may call and converse directly with any master telephone. The master telephones may call and converse directly with each master telephone.

A six-inch vibrating call bell shall be located at the master telephones.

The master telephones in pump room below grade level shall be equipped with a loud speaking receiver so that the voice can be clearly and audibly heard at a distance of not less than fifteen feet from the receiver.

WIRING.—The wiring for the telephone system shall not be smaller than No. 18 rubber covered wire installed in rigid iron conduit. The conduit system shall contain no conductors other than fire line telephone conductors.

The fire line telephone system shall be properly maintained and ready for use by the Fire Department at all times.

Rule 54. MAIN LINE EMERGENCY CONTROL VALVES IN BUILDINGS OVER 400 FEET IN HEIGHT (per Schedule A).—At the base of the main feed riser or below the hose outlet valves on the first story; at each pump room elevation, and at each approximate one-third the height above the fire pump elevations and the pump or roof tank next above, there shall be provided O. S. & Y. emergency control valves in the main feed riser properly numbered and shown on the fire pump blue print heretofore described.

Rule 55. EMERGENCY TOOL BOX. Where fire pumps are required under these rules there shall be provided in each pump room an emergency fire department tool box, painted a fire department red, with 3-inch white letters reading, "Emergency fire line tool box." The box shall be secured to the wall and be fitted with a fire department lock and contain the following:

1—3-foot Stillson wrench.
4—2½-inch plugs with pipe threads.
4—2½-inch caps with hose threads.
2—Spanner wrenches of Fire Department pattern.
4—2½-inch double female hose connections, with Fire Department threads.

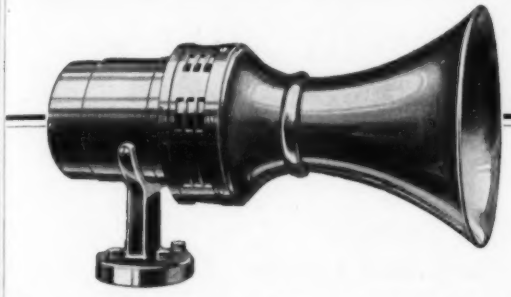
Rule 56. EMERGENCY AND TESTING HOSE.—Where fire pumps are required under these rules there shall be provided in each pump room not less than two 50-foot lengths of rubber lined 2½-inch hose, of Fire Department quality, and one 1⅛-inch nozzle of controlling type. All couplings to be of Fire Department pattern and threads. Hose shall be supported by hooks secured to enclosure walls of pump room.

(To be continued)

Bunnell, General Manager of Pyrene Co.—C. M. Bunnell has been appointed general sales manager of the Pyrene Manufacturing Co., of Newark, N. J. J. P. Maloney was made assistant general sales manager.

When Ammonia Is Heated, Something Generally Goes

Longshoreman who built a bonfire in Brooklyn, N. Y., to keep warm, failed to consider an ammonia tank which was nearby. The gas in the tank became heated, and in the explosion that followed, seven persons were injured. The photograph shows the remains of the steel tank.



LET TRAFFIC ROAR---A STERLING No. 12 Siren Gets You Through

Not an experiment or just "something new" . . . thousands of Sterling No. 12 Sirens are giving real traffic service the world over. Enclosed high-speed ball-bearing motor; balanced five-inch fan; micrometer clearances. Traffic obeys the No. 12! Try one and see for yourself. Complete with bracket, cord and switch, $90 f.o.b. Rochester.

There's a Sterling Siren for every Siren Need. Write for Bulletin 660.

The Sterling Siren Fire Alarm Co., Inc.
61 Allen St. Rochester, N. Y.

STERLING SIRENS

BRAXMAR BADGES

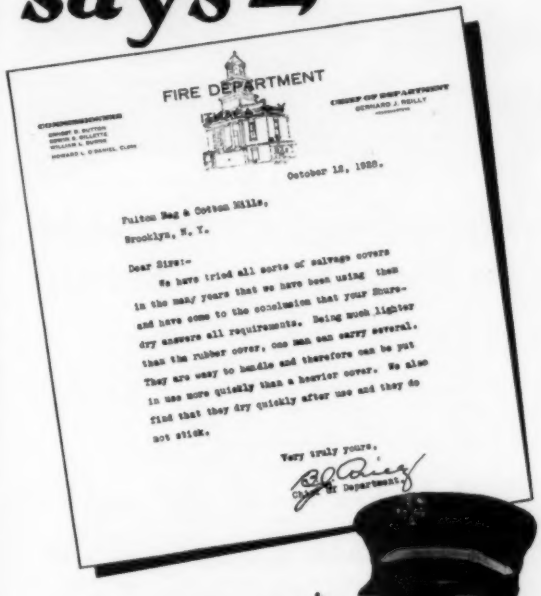
Standard for Fifty Years

1879 1929

FULLY ILLUSTRATED CATATOG ON REQUEST

C. G. BRAXMAR CO.
242 W. 55th St., New York

Prominent Fire Chief says—


FIRE DEPARTMENT

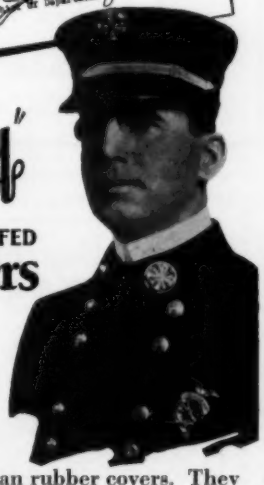
October 12, 1928.

Fulton Bag & Cotton Mills,
Brooklyn, N. Y.

Dear Sirs:-

We have tried all sorts of salvage covers in the many years that we have been using them and have come to the conclusion that your Shuredry answers all requirements. Being much lighter than the rubber cover, one man can carry several. They are easy to handle and therefore can be put in use more quickly than a heavier cover. We also find that they dry quickly after use and they do not stick.

Very truly yours,
Chief Fire Department.



"Shuredry" WATERPROOFED Salvage Covers

And why not! "Shuredry" Covers cost less, weigh less, handle easier and are easier to spread than rubber covers. They do not crack when folded and stored.

"Shuredry" covers stand punishment. They are durable. Fire chiefs throughout the country give their unqualified endorsement of "Shuredry" for Salvage work. Such statements from them as "Superior to any other on the market"—"Give absolute satisfaction"—are common.

You, too, will find "Shuredry" the cover you can depend on. Include in your appropriation this year a sufficient number of "Shuredry" covers to enable your department to minimize water damage and reduce insurance rates in your city.

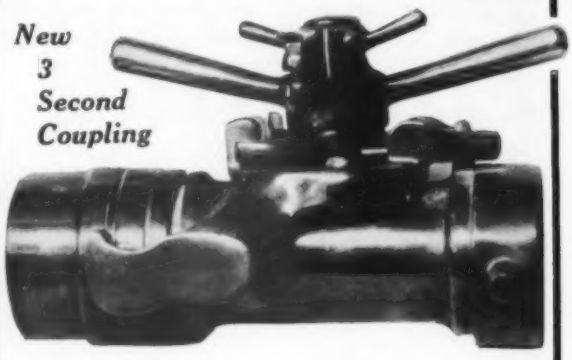
Write for sample and price.

Fulton Bag & Cotton Mills

Manufacturers since 1870

Atlanta Dallas Brooklyn St. Louis
Minneapolis New Orleans Kansas City, Kan.

New 3 Second Coupling



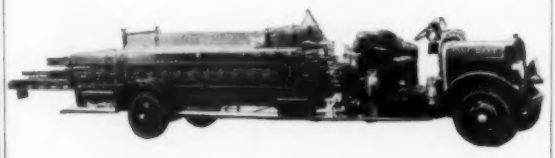
Threadless . . . No Leaks No Wrenches . . . Speedy

A snap of the lever and in 3 seconds a perfect high pressure connection without hammering or forcing. Works instantly regardless of bad first threads, damaged couplings, cross threads, stuck swivels, etc. Made in pin and rocker lug types. Simple to operate, sturdy construction. Every department should have them.

Write Now for All the Facts

Inter-State Coupling Co.

126 Pershing Ave., Carteret, N. J.



City Service Hook and Ladder Trucks

We build Ladder Apparatus to meet requirements of purchaser. No need selling small community large Unit with long Ladders, when smaller type costing less will answer their purpose.

We can furnish 50 and 100 gal. Booster Pump, and 80 gal. Booster Tanks, Power Take Off mounting. More effective and satisfactory than Chemicals.

Double Bank type — Ladders Mounted Low — Assures quick and convenient removal.

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The Burrell All Service GAS MASK

The Standard for the Fire Fighters of America

The Burrell All Service Gas Mask is the only mask approved by the United States Government for complete protection against Carbon Monoxide, Ammonia and every known poisonous gas. Write for Bulletin No. 121.

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FIRE HYDRANTS for DOMESTIC and HIGH PRESSURE Service

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All operating threads are dry, being above the stuffing-box.

No toggles, no small, quick-wearing parts.

All moving parts are bronze or bronze-bushed.

The outside casing permits replacing a two-way standpipe with a steamer and two-way standpipe without digging up the ground.

An easily installed EXTENSION SECTION readily adapts them to new grade.

VALVES and BOXES

CAST IRON PIPE

(Sand-Cast or "Sand-Spun")

FITTINGS

R. D. WOOD & CO., Phila., Pa.

FIRE DEPARTMENT ACTIVITIES

Fire House Opened in Staten Island, N. Y.—A new fire house has been opened in Staten Island, N. Y.

Saugus, Mass., May Have New Fire House—Saugus, Mass., is considering the construction of a new central fire house.

New Apparatus Ordered by Portland, Me.—Two new pumpers and an aerial truck have been ordered by Portland, Me.

Coronado, Cal., Will Have Drill Tower—A drill and hose drying tower will be erected in Coronado, Cal.

Rome, N. Y., Adopts Two-Platoon System—On January 1, the two-platoon system went into effect at Rome, N. Y.

Adrian, Mich., to Sell Fire Station—The city commission of Adrian, Mich., has ordered the sale of Fire Station No. 2 that was abandoned when the fire department was motorized.

Ex-Chief of Marlboro, Mass., Killed—Ex-Chief Charles H. Andrews of Marlboro, Mass., was killed recently in an automobile accident between Sudbury and Hudson, Mass.

Moline, Ill., Has New Pumper—An Ahrens-Fox pumper has been delivered to Moline, Ill. It is the fourth of this type to be placed in service in the city, and it was purchased for $13,500.

More Equipment Needed in Great Falls, Mont.—In studying the fire losses of Great Falls, Mont., W. G. Brooks, state fire marshall, urged more equipment and men for the fire department.

New Car Presented to Port Arthur, Tex., Chief—Chief La Rose of Port Arthur, Tex., was presented with a new car. The chief has been laid up with influenza.

Ten Pass Des Moines Lieutenant Test—Ten men have successfully passed the test for lieutenant in Des Moines, Ia.

Looking for Site in Glendale, Cal.—Glendale, Cal., is still looking for a site on which to erect a central fire station and a place where the fire alarm system will be housed.

Car Presented to Chicago Fire Chaplain—Commissioner A. W. Goodrich, of the Chicago Fire Department, presented a car to Father W. J. Gorman, chaplain of the fire department.

Illinois Firemen Campaign for Gamber—The Illinois Firemen's Association has opened a campaign to have John Gamber reappointed state fire marshal.

Department Organized at Mt. Tabor, S. C.—Will Bruton was named chief of the fire department organized recently in Mount Tabor, S. C.

W. Concord, Minn., Orders Apparatus—A 300-gallon pumper with chemical tank has been ordered by West Concord, Minn.

Sioux City Fire Alarm Completed—The new fire alarm system in Sioux City, Ia., completed at a cost of $30,000, has been placed in service.

May Order Fire Drills Outside Metropolitan Area—A bill has been presented in the Massachusetts legislature to give the state police authority to order fire drills in factories outside of the Metropolitan District.

Rowdies Attack East Boston Firemen—Two members of Engine 11 of East Boston, Mass., were struck with bottles thrown by a gang of rowdies while the apparatus was returning from a dump fire.

Nineteen Fires in Santa Barbara Forests—Nineteen forest fires in the Santa Barbara National Forest have been caused by careless smokers and they resulted in a damage estimated at $64,500.

Pikeville, Ky., to Reduce Fire Hazards—The business men's association of Pikeville, Ky., has started a move to have the fire chief appointed fire inspector, in an effort to reduce the fire hazards in the business section.

Tri-City Fire Agreement Drafted—The fire departments of Red Oak, Clarinda and Shenandoah have entered into a mutual agreement to assist each other in case of a serious fire. The hose couplings of the three departments are interchangeable.

Akron, O., Firemen Ask for Increase—Firemen of Akron, Ohio, have asked for a ten per cent increase in their pay. Firemen have "button-holed" councilmen in an attempt to get their support.

Battle Creek, Mich., Rescinds Order to Stop—Fire apparatus in Battle Creek, Mich., will no longer be required to obey the "stop and go" signal lights. Both the mayor and fire chief have been considering this subject. The traffic rule was made effective following a serious apparatus crash.

New Station Opened in Redwood, Cal.—A new fire station for an engine company was formally opened in Redwood, Cal. The cost of the station is $13,000 and is patterned after Spanish architecture. A number of gifts of furnishings for the house were made by residents.

Boston to Erect House in Bowdoin Square—The Boston city council has passed a loan order for $350,000 for the construction of a new fire house in Bowdoin Square which will serve as quarters for Engines 4 and 8, Ladder Co. 24, a district chief, and a water tower.

Two Hotels Destroyed at Annisquam, Mass.—Two large summer hotels at Annisquam Heights, Gloucester, Mass., were destroyed. Chief Marchant of Gloucester sounded a general alarm and called aid from Rockport and Manchester. The loss was estimated at $100,000.

Lakewood to Aid Berea, O.—Chief Joseph Speddy of Lakewood, Ohio, stated that the Lakewood Fire Department would aid Berea, in case of fire. Chief Speddy recently gave a talk before the Berea High School students in which he described modern fire-fighting.

Tacoma Starts Work on New Fireboat—The keel has been laid for the new fireboat being constructed for Tacoma, Wash. In addition to the fireboat, the city is establishing fire stations upon the tideflats, and when the improvements have been made, the city will have adequate fire protection.

Fire Code Revised in Waterloo, Ia.—One of the outstanding accomplishments for 1928 in Waterloo, Ia., has been the revision of the fire code by Chief Ray Tiller. The code provides for the building of dikes about oil storage tanks, and covers other subjects.

Salt Lake City After Building Violations—Salt Lake City, Utah, is to prosecute 212 apartment house and hotel owners who have failed to comply with the recommendation to have fire safety equipment installed. Chief Walter S. Knight and the building inspector made a complete investigation of the matter.

Milwaukee Firemen's Age Limits Lowered—Acting upon the recommendation of Chief Peter Steinkellner, the age limit of applicants for the fire department has been lowered to the period of from twenty-two to thirty-two years. Formerly the limits were twenty-four and thirty-four inclusive.

Fireman Killed in Apparatus Collision—A pipeman of the Paducah, Ky., fire department was killed and several other firemen were injured when a pumper and ladder truck collided on the way to a fire. One of the trucks was hurled across the sidewalk and into a building.

N. Tonawanda, N. Y., Considering Pensions—The Board of Fire Commissioners of North Tonawanda, N. Y., is considering the matter of pensions for the fire department. The firemen desire a pension similar to that enjoyed by members of the police department. According to a state law even city officials are eligible for a pension.

Chief Beckerle of Danbury, Conn., Injured—Chief Peter Beckerle of Danbury, Conn., was painfully injured on January 2 when he was thrown out of his car as his machine skidded on an icy pavement while going to a fire. His back, shoulders and hips were injured. The driver was unhurt although the car had made a complete turnover on the road.

Massachusetts Departments are Tax-Free—According to a ruling by Tax Commissioner Long of Massachusetts, the fire departments of cities and towns will not be required to pay the excise tax of two cents a gallon on gasoline consumed by pumpers in operation at fires. But the tax will be collected on fuel consumed by the apparatus while going to and returning from fires. The tax is to be paid on all gasoline at the time of purchase, but upon filing a notice a rebate will be made of the gasoline used at fires, in operating the pumpers.

Superintendent Williamson of Boston Commended—A recent order of the Boston Fire Department contained the following notice: "Superintendent Edward E. Williamson of the Maintenance Division, is hereby commended for efficient service rendered by him, outside the line of duty, on December 12, 1928, when a car of the sedan type skidded on Perkins street, Jamaica Plain, and plunged down the embankment into Jamaica Pond. Superintendent Williamson, who was passing, rushed down to the shore, entered the water, and removed two women who were occupants of the car. Superintendent Williamson's conduct on this occasion reflected to the credit of the department."

PROPOSED IMPROVEMENTS

Worcester, Worcester Co., Mass.—City Council adopted an order authorizing purchase of a $10,000 ladder truck for Cambridge Street fire station, according to reports.

Hattiesburg Forest Co., Miss.—A new fire station is to be erected here, according to reports.

Nutley, Essex Co., N. J.—Fire Chief Harry F. Kimball recommended the purchase of a large pumper for fire department.

Orange, Essex Co., N. J.—James J. McMillan recommended the purchase of a 1,000 gal. pumper and increase in personnel of fire department.

Laurel, Prince George Co., Md.—City Council interested in purchase of an engine or pumper for local fire department, according to reports.

Hazelton, Luzerne Co., Penn.—Fire Chief Lewis J. Kepping recommended that city fire alarm system be entirely overhauled and that an eight circuit board instead of the present four circuit board be installed.

Boothwyn, Delaware Co., Penn.—Contract has been awarded for erection of a new fire station to cost $10,000.

Rochester, Olmstead Co., Minn.—At election held Jan. 15, city defeated the $80,000 bond issue for erection of fire station.

Plymouth, Richland Co., Ohio—Village Council considering the purchase of a piece of fire apparatus.

Salesmen Wanted

For each State, to handle excellent Fire Department sundries. Write for particulars. P-B Mfg. Co., Inc., 4567 Swan Ave., St. Louis, Mo.

1-23

CONVENTION DATES

March 25-27—SOUTHWESTERN ASSOCIATION OF FIRE CHIEFS. 2nd Annual Convention, Shreveport, La. Secretary-Treasurer, Chief Tom Lyle, Okmulgee, Okla.

April 1-3—FLORIDA STATE FIREMEN'S ASSOCIATION. 4th Annual Convention, Key West, Fla. Secretary, F. C. Pfaender, Winter Haven, Fla.

April 11-13—ARIZONA STATE FIREMEN'S ASSOCIATION. 6th Annual Convention, Yuma, Ariz. Secretary, Chief W. J. Nemeck, Douglas, Ariz.

May, June or July—SOUTH CAROLINA STATE FIREMEN'S ASSOCIATION. 24th Annual Convention, Columbia, S. C. Exact date to be decided later. Secretary, Richard S. Hood, Sumter, S. C.

May 13-16—NATIONAL FIRE PROTECTION ASSOCIATION (International). 33rd Annual Meeting Memphis, Tenn. Technical Secretary, Robert S. Moulton, 60 Batterymarch Street, Boston, Mass.

June—KANSAS STATE FIRE CHIEFS' AND FIREMEN'S ASSOCIATIONS. Tentative as to Conventions and first Fire School in Kansas, Newton, Kan. Exact date to be announced later. Secretary of both Associations, Chief K. D. Doyle, Wamego, Kan.

June—NEW YORK STATE ASSOCIATION OF FIRE CHIEFS. 23rd Annual Convention, Binghamton, N. Y., (Tentative, as final arrangements have not been perfected). Secretary, Chief James H. Golden, Fire Department, Cohoes, N. Y.

June—SOUTH DAKOTA FIREMEN'S ASSOCIATION. 13th Annual Convention, and Tournament. (Tentative) Hot Springs, S. Dak. Secretary, M. C. Sullivan, Parkston, S. Dak.

June 12-13—NORTHERN INDIANA INDUSTRIAL AND VOLUNTEER FIREMEN'S ASSOCIATION. 24th Annual Convention, Bremer, Ind. Secretary-Treasurer, Hugh Russell, Bluffton, Ind.

June 12-14—MARYLAND STATE FIREMEN'S ASSOCIATION. 37th Annual Convention, Lonaconing, Md. Secretary, George R. Lindsay, Hagerstown, Md.

June 15—LEBANON COUNTY FIREMEN'S ASSOCIATION. Annual Convention, Myerstown, Pa. Secretary, William I. Kutz, Box 233, Myerstown, Pa.

June 20-21—EASTERN ASSOCIATION OF FIRE CHIEFS. 2d Annual Convention, New York City. (Meeting place to be decided later.) Secretary, T. Howell Johnson, Room 602, Chamber of Commerce Bldg., Newark, N. J.

June 24-28—AMERICAN WATER WORKS ASSOCIATION. 49th Convention, Hotel Royal York, Toronto, Ont., Can. Secretary, Beekman C. Little, Rochester, N. Y. Office of Association, 29 West 39th Street, New York City.

June 25-27—NEW ENGLAND ASSOCIATION OF FIRE CHIEFS. 7th Annual Convention, Hotel Taft, New Haven, Conn. Exhibits, Second Regiment Armory. Secretary-Treasurer, Chief John W. O'Hearn, Watertown, Mass.; Chairman, Exhibits, Chief John S. Pachl, Annex Fire Department, New Haven; Traffic Manager, Geo. F. Cobb, Boston.

July 9-11—MICHIGAN STATE FIREMEN'S ASSOCIATION. 55th Annual Convention, Sault Ste. Marie, Mich. Secretary, H. L. Williams, Luddington, Mich.

July 10-11—DELAWARE VOLUNTEER FIREMEN'S ASSOCIATION. 9th Annual Convention, Wilmington, Del. Secretary, Sam H. Carson, Dover, Del.

July 15-16—MONTANA STATE FIREMEN'S ASSOCIATION. 38th Annual Convention, Butte, Mont. Secretary-Treasurer, D. E. Moser, Bozeman, Mont.

July 17-19—INDIANA FIREMEN'S ASSOCIATION. 12th Annual Convention, Gary, Ind. Secretary, Clem Smith, Fire Headquarters, Terre Haute, Ind.

August—IDAHO FIREMEN'S CONVENTION. Tentative, August or September, Idaho Falls, Ida. Secretary-Treasurer, Earl Heath, Idaho Falls.

August—MAINE STATE FIREMEN'S ASSOCIATION. 2nd Annual Convention (tentative, exact time to be announced later), Waterville, Me. Secretary, Earl E. Pratt, Fire Department, Auburn, Me.

August—UTAH STATE FIREMEN'S ASSOCIATION. 22nd Annual Convention (tentative, to be decided later), Tooele City, Utah. Secretary, Harris E. Anderson, Fire Headquarters, Salt Lake City, Utah.

Aug. 7-9—CALIFORNIA STATE FIREMEN'S ASSOCIATION. 7th Annual Convention, Fullerton, Cal. Secretary-Treasurer, H. E. Strasser, 1171 Tenth St., San Diego, Cal.

Aug. 7-9—SOUTHWESTERN ASSOCIATION OF VOLUNTEER FIREMEN OF NEW YORK. Annual convention, Falconer, N. Y. Secretary, Royce Alden, Falconer, N. Y.

Aug. 20-23—FIREMEN'S ASSOCIATION STATE OF NEW YORK. 57th Annual Convention, Saranac Lake, N. Y. Secretary, Fred A. Davis, Fort Edward, N. Y.

Aug. 26-28—NEW MEXICO STATE FIREMEN'S ASSOCIATION. 7th Annual Convention, Gallup, N. M. Secretary-Treasurer, Theodore A. Rosenwald, Albuquerque, N. M.

Aug. 28-30—VIRGINIA STATE FIREMEN'S ASSOCIATION. 43rd Annual Convention, Lexington, Ky. Secretary, E. K. Landis, Pulaski, Va.

Sept. 3-5—KENTUCKY STATE FIREMEN'S ASSOCIATION. 1st Annual Convention, Ashland, Ky. Secretary, Captain S. G. Render, 303 Speed Bldg., Louisville, Ky.

Sept. 9-11—ARKANSAS STATE FIREMEN'S ASSOCIATION. 8th Annual Convention, Camden, Ark. Secretary-Treasurer, H. D. Compton, Central Fire Station, Little Rock, Ark.

Sept. 10-12—ILLINOIS FIREMEN'S ASSOCIATION. 42nd Annual Convention, Joliet, Ill. Secretary, Assistant Chief Roy W. Alsip, Fire Department, Champaign, Ill.

Sept. 17-18—IOWA STATE FIREMEN'S ASSOCIATION. 52nd Annual Convention, Red Oak, Ia. Secretary, E. E. Parsons, Marion, Ia.

Sept. 18-19—MISSOURI ASSOCIATION OF FIRE FIGHTERS (Consolidated with former Missouri State Association of Fire Chiefs). Annual Convention, Jefferson City, Mo. Secretary, M. J. Mulvoy, 3500 S. Grand Boulevard, St. Louis, Mo.

Sept. 20-21—NEW JERSEY STATE FIREMEN'S ASSOCIATION. 52nd Annual Convention, Atlantic City, N. J. (Tentative date, to be definitely set later by Executive Committee). Secretary, William Exall, Room 602, Chamber of Commerce Bldg., Newark, N. J.

Oct. 1-3—FIREMEN'S ASSOCIATION OF THE STATE OF PENNSYLVANIA. 50th Annual Convention, Hotel Roosevelt, Pittsburgh, Pa. Secretary, Charles E. Clark, P. O. Box 217, Wayne, Pa.

Oct. 22-25—INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. 57th Annual Convention, Hotel Tutweiler, Birmingham, Ala. Exhibits, City Auditorium. Recording Secretary, Chief James J. Mulcahey, Yonkers, N. Y.; Executive Secretary, Jay W. Stevens, 1113 Merchants Exchange Bldg., San Francisco, Cal.; Chairman, Exhibit Committee, Chief Selden R. Allen, Brookline, Mass.

Fire Alarm Designed for Industrial Use

An electro-mechanical fire alarm system designed for industrial use, and for public buildings, is being marketed by the McFell Electric Devices Co., of Chicago.

The fire alarm box consists of a code wheel on which are a number of buttons. The code is established by pushing the required buttons. This causes contactors to be set up on the periphery of the wheel which make contact when the code wheel is rotated. After the required number of rounds have been turned in, the contactors go back to their normal position and the wheel is ready for the next alarm.

The advantage claimed for this system is that no code wheel can be lost, nor is it necessary to change the wheel for each signal. Little space is required.

It is operated by a spring motor drive, and if necessary, the signal can be operated for twenty minutes continuously.

Mile of Roadway Torn by Blast

More than a mile of roadway in West Central London, England, was torn up by the explosion of several gas mains. Seven people were sent to hospitals with injuries as a result and a number were gassed. Practically every public service such as water, electric and so forth, suffered.

The original outbreak was in the form of four earth-shaking explosions as if bombs were again raining down on London. Solid concrete roadways and sidewalks were torn like so much paper, and large holes were left. Concrete slabs piled up on each other.

Many pedestrians were thrown down, and glass windows of adjoining stores were shattered. Terrified householders ran to the street only to see blue flames hissing from large openings in the street. Pictures and crockery were dislodged in homes.

The explosion was caused by a workman who had gone down into a large inspection chamber with an electric blower to drive out the foul air from the passages. He connected the blower to an electric switch and the next instant his fellow-workmen on the street heard him scream. He rushed up from the pit with his clothes all afire.

A number of smaller blasts followed the main explosion. Firemen and police were scattered all about the section to cope with the emergency. It is believed that the damage will amount to about $1,000,000.

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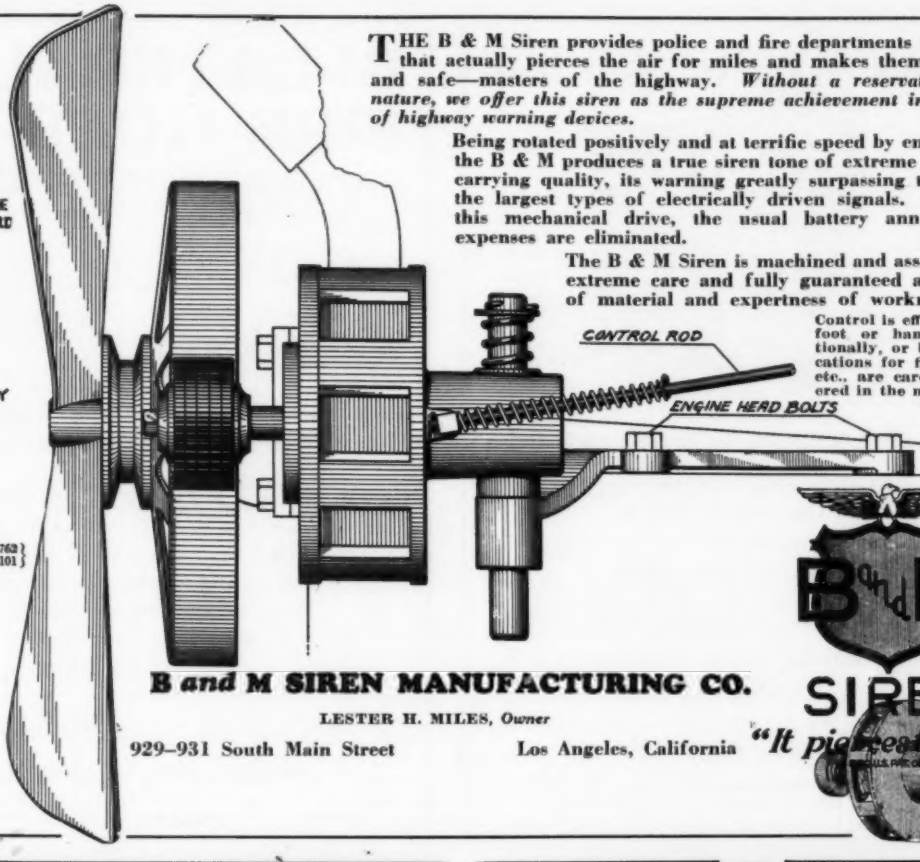

THE B & M Siren provides police and fire departments with a voice that actually pierces the air for miles and makes them absolute—and safe—masters of the highway. *Without a reservation of any nature, we offer this siren as the supreme achievement in the design of highway warning devices.*

Being rotated positively and at terrific speed by engine power, the B & M produces a true siren tone of extreme volume and carrying quality, its warning greatly surpassing that of even the largest types of electrically driven signals. Because of this mechanical drive, the usual battery annoyance and expenses are eliminated.

The B & M Siren is machined and assembled with extreme care and fully guaranteed as to quality of material and expertness of workmanship.

Control is effected through foot or hand levers optionally, or both. Specifications for fire apparatus, etc., are carefully considered in the manufacture of these signals.

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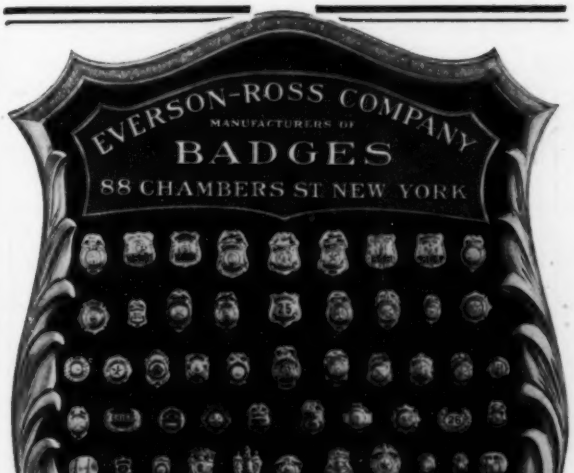

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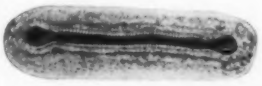

The City of Wheeling just purchased 5,000 feet of Bi-Lateral Fire Hose coupled with rocker lug couplings. This city purchased 5,000 feet last year and it is believed that as soon as their department is equipped with this improved construction in fire hose they will be able to cut their hose expense to less than half of what it has been previously. Let the BI-LATERAL FIRE HOSE COMPANY tell you why this may be true.

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OF INTEREST TO VOLUNTEER FIRE DEPARTMENTS

HOW TO PLAN FOR ORGANIZATION OF A RURAL FIRE DEPARTMENT

Certain Points to Guard Against—Selection of Fire Chief and President of Company Is Important—Verbal Pledges Do Not Buy Apparatus

MANY sections of the country, especially so the mid-western communities, are confronted with the problem of organizing a company for rural protection.

At the outset a committee of four or five enthusiastic workers is formed to start the project. This preferably should be done just after a bad fire when the people are in a receptive mood. To build up public opinion, the newspapers are induced to conduct strong editorial campaigns for rural fire protection. Then a public meeting is called at which the committee should endeavor to secure the presence of every person in the community.

The meeting should be held at some central town or village which logically might be selected as the headquarters of the proposed rural fire company. If possible, a town which does not have a fire company should be chosen; then the committee can spread the idea that the meeting is called to organize a fire company for both rural and town protection. This idea, when properly emphasized, should bring out a far larger crowd than if rural fire service alone is stressed. Moreover, this assists in obtaining the moral and financial support of business and professional men, as well as that of the farmers.

A small town will often be very satisfactory for the station of the fire company. Successful combined rural and town fire companies have been organized in villages of less than a thousand population.

Volunteer firemen from a town nearby may be invited to the meeting to speak and to answer questions. They should wear their uniforms and may bring with them a reserve fire truck or engine for display. The nomination of a chairman thoroughly informed on the purpose of the meeting should be made certain before the meeting. This chairman opens the proceedings by calling on one of the visitors to speak on the need of a fire company and explain how it can be organized. In addition, various local men who support the proposal are called on. Motions for organization and for the election of president, vice-president, secretary, treasurer, chief and assistant chief follow.

Nominations of the proper men for all offices should be prearranged by the committee, usually by having a nominating committee appointed. A man of known business ability and common sense, who can adjust difficulties and keep the men interested, should be chosen as president. The chief must be a real leader, able to enforce orders, for without centralized authority at a fire, everyone will be giving contradictory orders while the building burns. The chief should live near the engine house, and his business should permit him always to be within call. A rural mail carrier or a traveling salesman obviously will not do. Elections over, the president next should declare a ten-minute recess to permit all who wish to join the fire company as active or honorary members. Then a committee on constitution and by-laws is appointed to report at the next meeting.

The chairman should tactfully but firmly suppress any discuscussion or arguments over details. More than one organization meeting has been broken up by a controversy over the question of whether the engine should be owned by the town, the county, or the firemen; where the engine house should be built, how a water supply should be best provided; and the like.

A fire engine manufacturer's representative should be asked to the meeting and as soon as the roll call has been signed, he should talk on the types of apparatus and the cost. Of course, no purchase should be contemplated until other manufacturers have been interviewed or their estimates obtained.

With this information before the meeting, some one should move that a certain sum be raised and offer the initial subscription. Several others should be ready to follow. Once started, the subscriptions should mount fast. Before the meeting is adjourned, it is suggested that a finance committee be appointed to raise the rest of the money and recommend the purchase of apparatus.

Mere verbal pledges do not buy such equipment. At the meeting every man who has promised to give, should be asked to sign a pledge blank. Payments may be arranged so as to cover a two-year period. Fire apparatus can usually be purchased on installment with a twenty-five per cent cash payment. More money can be raised by sending a committee among the audience with the necessary blanks than by depending on voluntary offers to subscribe.

Publication in the newspapers each week of a full list of contributors to date, with the amounts subscribed, is very important. It insures the maximum amount from every giver. In addition to printing the list, the newspapers may receive subscriptions, often bringing in contributions from persons who have not been reached by the committee.

The drive for funds is organized systematically. From the tax roll or telephone book, lists are made up and assigned to committee members. It may or may not be possible to obtain county, township or village appropriations for the project. In some communities, experience has indicated that it is inadvisable to ask for any tax money to be used for such purchase as there may be legal difficulties in appropriating public funds to a private corporation.

Data taken from the "Rural Fire Department" of the National Fire Waste Council.

Home-Made Apparatus Considered Risky

A correspondent writing in *Fire*, a London publication, complains of the tendency on the part of some city councils to consider home made fire apparatus. He writes:

"Anyone with an ounce of gumption and a like quantity of practice can foretell what will be the result from home-made fire apparatus. It is not so very long ago that one of these home-made fire engines overturned when responding to the call. The pity of it all is that the council was not riding on it.

"It is nothing less than an insult to the whole volunteer movement that such makeshifts should be forced on volunteer fire brigades. The professionals would never stand it, and although they have their jobs at stake, they would walk out rather than connive at such a gross deception of the public.

"There are plenty of good fire apparatus makers in this country and plenty of competition; and I think it would be well if the headquarters council gave this matter attention. Some of the fire apparatus in volunteer brigades is a positive disgrace and no self-respecting officer and man can consent for one moment to use it."

Volunteers Called to Fight New Jersey Forest Fire

Firemen and volunteers from all neighboring communities were called out to fight a forest fire that destroyed two hundred acres of woodland in a section near Mount Mitchell, N. J. The men, armed with rakes and brooms, beat out the blaze in the undergrowth.

FALSE ALARMS

VALUABLE TEXT

A battalion chief desiring to be of assistance to the men in his battalion, established a library in his office where men studying for promotional examinations could obtain the needed information. The plan was successful. One could always find a number of the boys looking through the magazines or taking out a book for home study.

One evening a fireman came up to the chief, hat in hand and asked:

"Can I see that book that I had last week?"

"Sure. Was it interesting."

"Kind of. I want it because it's got my girl's telephone number in it."

GREATEST OF ALL

The discussion reverted back to the annual banquet of the fire department, held as customary, in the local hotel.

"It sure was a great dinner with great speeches, but the dessert outweighed all."

"How's that" asked one of the group.

The wit replied, "Brick ice cream and marble cake."

An optimist is one who believes that girls' skirts can get shorter.

HE LOVED THEM

All of the company officers were called for a conference at headquarters. Although the fire commissioner was a strict disciplinarian, he also believed that the officers should develop a certain feeling of brotherly love on the part of the men. The firemen should be made to feel that the officers were looking out for the men's welfare.

"And now," continued the commissioner, "I believe you get my point. I hope each and every one of you approves mothering the men? Those who do, hold up their hands.

One hand was raised.

"What, only one officer who approves mothering the men?"

"Pardon me, commissioner. I thought you said, 'smothering'."

If a man makes a mistake in choosing a wife these days it is certainly his own fault. He can see all he's getting.

PROPERLY GUARDED

The policeman was very much surprised to see an excited person rush up to him, dressed in fire department regalia. He thought that assistance was needed at a fire.

"Officer, you'd better lock me up. I just hit O'Reilly over the head with a hose wrench."

"Did you kill him?"

"No I didn't. That's why I want you to lock me up.'

THE WRONG ONE

"I just saw the chief go by the Gayety, as I was coming down town."

"Going by, did you say?"

"Yes."

"Then it wasn't the chief."

HANDICAPPED

The short course for firemen at the state university had ended, and all the firemen, anxious to get away from the confines of the classroom, hastily packed their suit cases and rushed for their fire station back home.

One fireman had driven back in his car. As he alighted at the station, the chief was there to greet him.

"Did you pass everything?" he asked.

"Everything, chief, but two Buicks and a Hudson. Darned if they mustn't have had aeroplane motors in them."

Seeing Is Not Always Conclusive Proof

A certain member of the Fame Company in a Pennsylvania community has been hearing a story that will require a long time to die out. As he was about to enter the door in a home where a fire was reported, he noticed another fireman standing in the doorway. As befitting a good fireman, he stepped aside. The other did likewise. When he yielded priority rights so that the other could get by, then, as a matter of courtesy, the motion was duplicated. When this had been going on for some time without any headway being made, the member of the Fame Company rushed headlong for the doorway. It was only then that he discovered that a mirror, the size of a door, blocked his path.

WASTED EFFORT

Casey and Mulligan were the best of enemies. They had been nursing their dislikes towards each other for some time, and every so often, the hatred would be re-created.

At the Center street fire Casey was sent on the roof to ventilate and Mulligan held a hose line below.

Casey found a loose brick on the roof and could not resist the temptation. Down went the brick on Mulligan's helmet.

An ambulance surgeon was called to dress the wound. The chaplain was also on hand.

"I'm going to pray that you may forgive Casey for having thrown that brick at you."

"Maybe yer Riv'rence 'ud be saving toime if ye'd wait till Oi get well, and thin pray for Casey."

A pedestrian is a girl who won't neck.

HE DID

A fire official was careless enough to invite his family to accompany a post-convention party on an ocean trip. After a day at sea, Willie, the youngest, was the only one of the group who was not seasick. It was trying for the mother to see the child so healthy and eating so much.

She said, "Father, I wi-wi-wish you'd speak to Willie."

Father stirred feebly, gulped a couple of times, hung his head and said, "Howdy, Willie."

EVENED MATTERS

MacGregor had been having some tough breaks. First he was overcome at an ice plant fire and then his appendix had to become troublesome. He was advised to submit himself for an operation.

It was a very shaky MacGregor who confided to the nurse:

"I'm dreadfully nervous. I've never had an operation before."

The nurse looked around to see if any one was near. Then she whispered reassuringly:

"You needn't feel nervous. Neither has the doctor."

CLOSE AT HAND

"Gee, that was some party New Years! Some of the volunteers went back to the house and had a party all by themselves. Heard you were there. How did you find yourself after the party?"

"Oh, I just looked under the table and there I was."

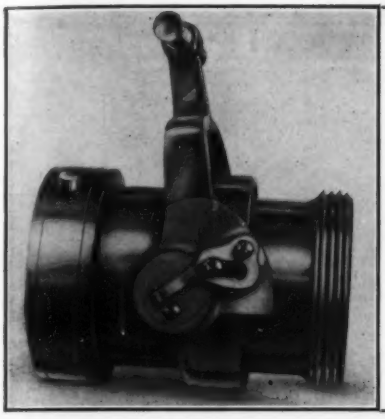
PRIDE UPPERMOST

A chief from a large city in Indiana visited a rural section for his vacation. But his presence was soon discovered, and he was asked to address a county fire meeting. It was to be a meeting of some importance. The head of one volunteer department could not attend so he sent the paid driver instead.

"Well what did you say to the chief?" was the question put to the driver the next morning.

"Nothing."

"What!" said the volunteer department head in disgust. "Your domineering pride will get the best of you some day."



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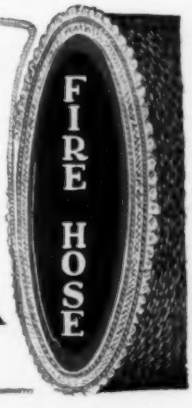

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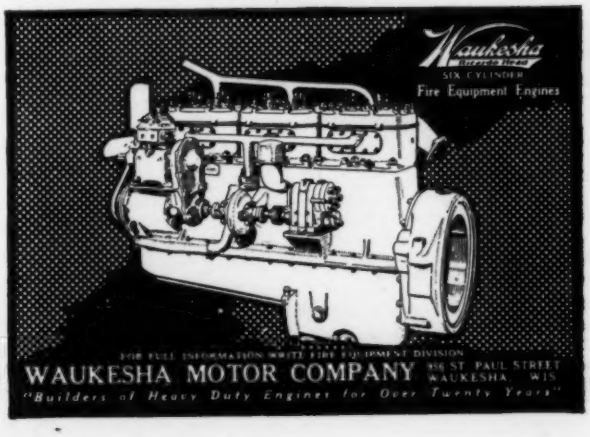
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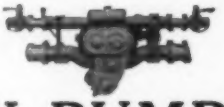

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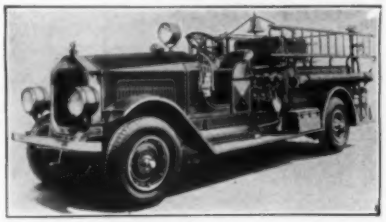

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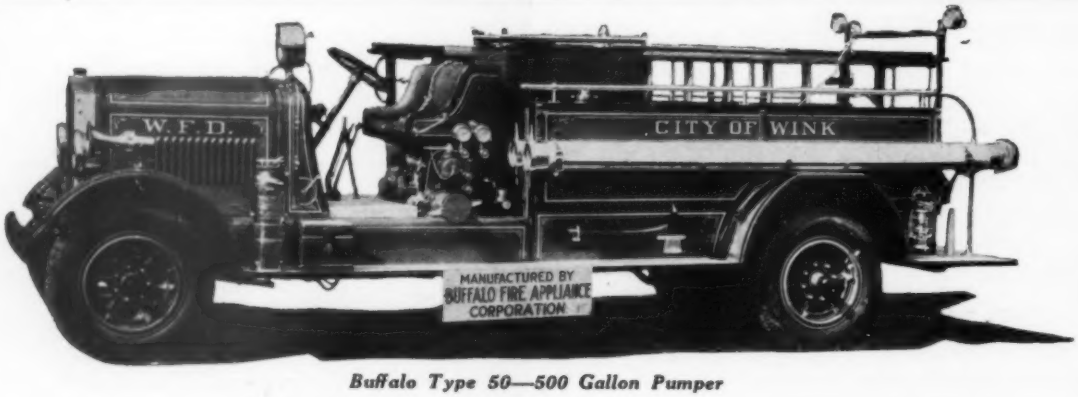

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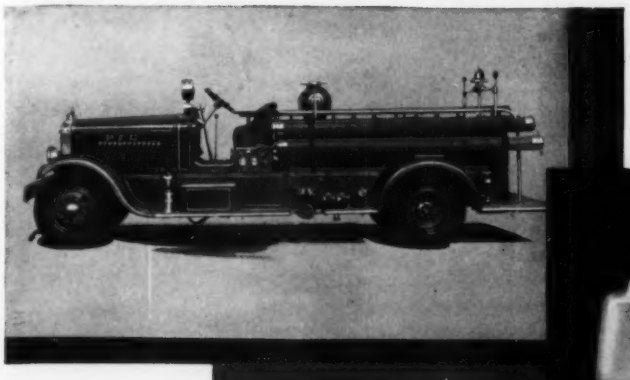
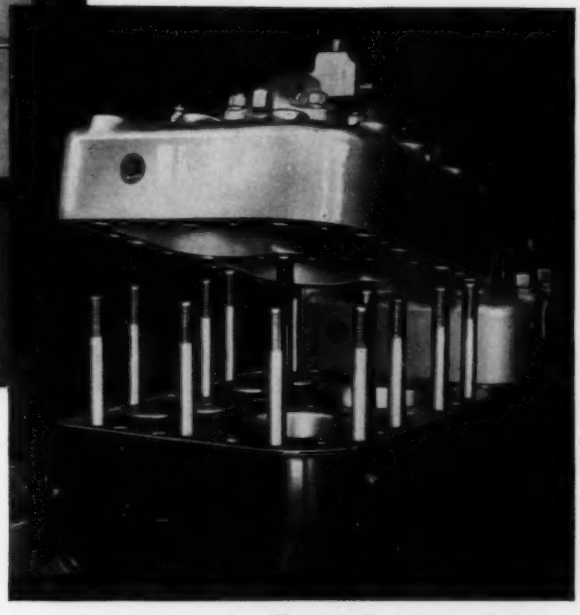


Mack Type 19—1000 gallon combination hose and pumper recently delivered to Portland, Oregon, Fire Department.



The cylinder section of the new Mack AP 6-cylinder Fire Apparatus Engine, showing the offset combustion chamber.

MACK *designs a power plant that furnishes* MAXIMUM POWER *from* MODERN FUELS

Fire apparatus today must have positive, steady, and unfailing power—power for speed to answer alarms with modern promptness—power to pump the increased volumes of water required to fight fires in massive buildings.

But maximum power can only be obtained by the most intimate mixture of air and gasoline in the combustion chambers. The offset type developed by Mack engineers for the Mack Fire Apparatus power plant increases the turbulence which facilitates combustion. Correct vaporization, valving and lubrication secure highest efficiency. Better performance is the result.

You need extra power for road and pump work in your new Fire Apparatus, and you get it in Mack.

Mack builds *today* the Fire Apparatus of *tomorrow.*

More than one hundred direct Mack Factory Branches are equipped to service Mack Fire Apparatus in any emergency.

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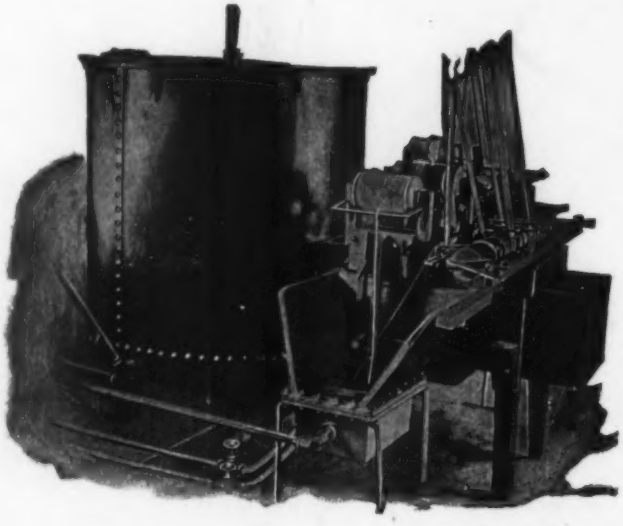
Fire Engine Division
25 Broadway, New York, N. Y.

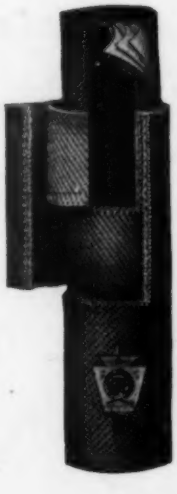


How is it Made?

FABRIC FIRE HOSE is so unusual in its construction that we have been asked again and again just how it is made. Those who have used it and have found its wonderful service qualities, far above the average hose, felt sure that we must have some special process of manufacture that makes Fabric Hose better.

And we have.

For instance, the machine illustrated above is for our patented process of treating the cotton strands with wax and Para gum, making Fabric Hose absolutely waterproof and impervious to mildew and rot.



Many other details of our process, besides this one, are illustrated and explained in a little booklet we shall be glad to mail you for the asking—"Wax and Para Gum Treated Fire Hose.—How It Is Made." Address:

Fabric Fire Hose Co.

9-15 Park Place, New York, N. Y.

124-126 W. Lake Street, Chicago

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